

SOAP

and Chemical Specialties

On this issue...

detergent-sanitizers—
quaternary type use up

* * *

insecticidal stability:
deltamethrin vs pyrethrins

* * *


paste cream shampoos—
factors in consistency

* * *

new pressure packaging
developments of month

New packaging for "Joy" liquid
dishwashing detergent of Procter
& Gamble Co., Cincinnati, Ohio,
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supplied by American Can Co.
Red cap and pour spout are of
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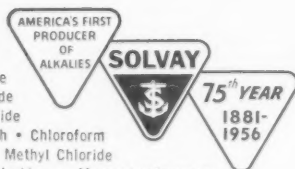
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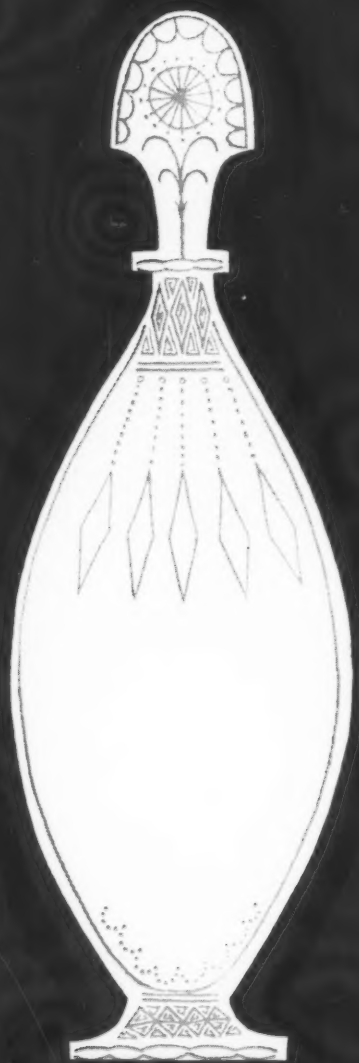
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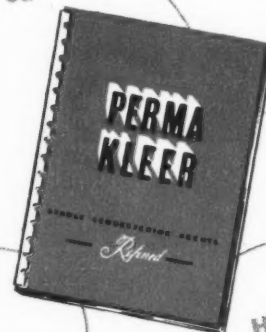
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SOAP

and Chemical Specialties

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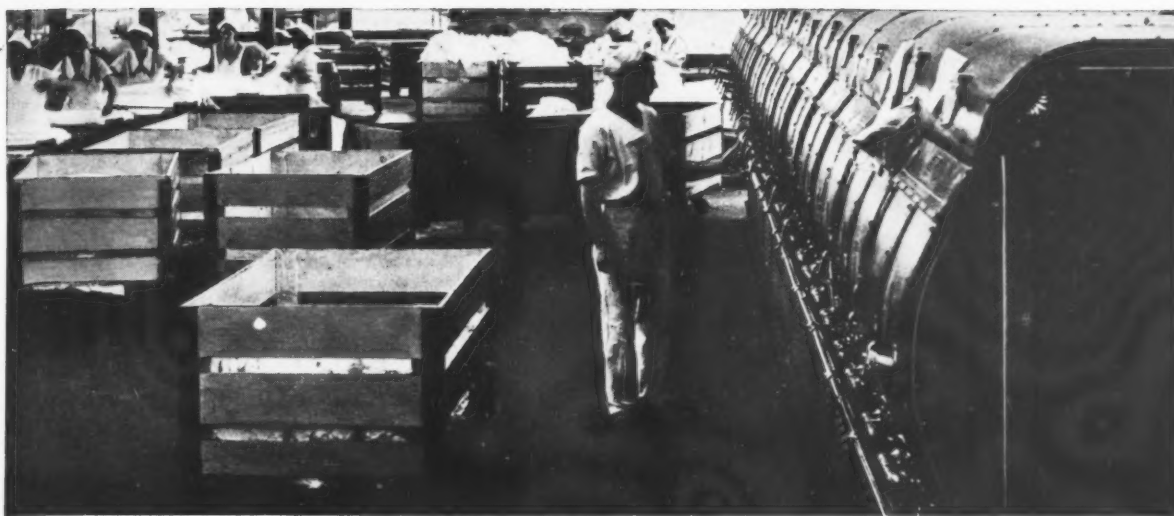
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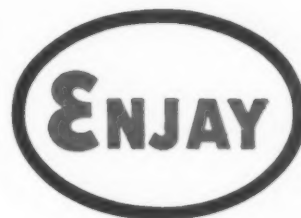
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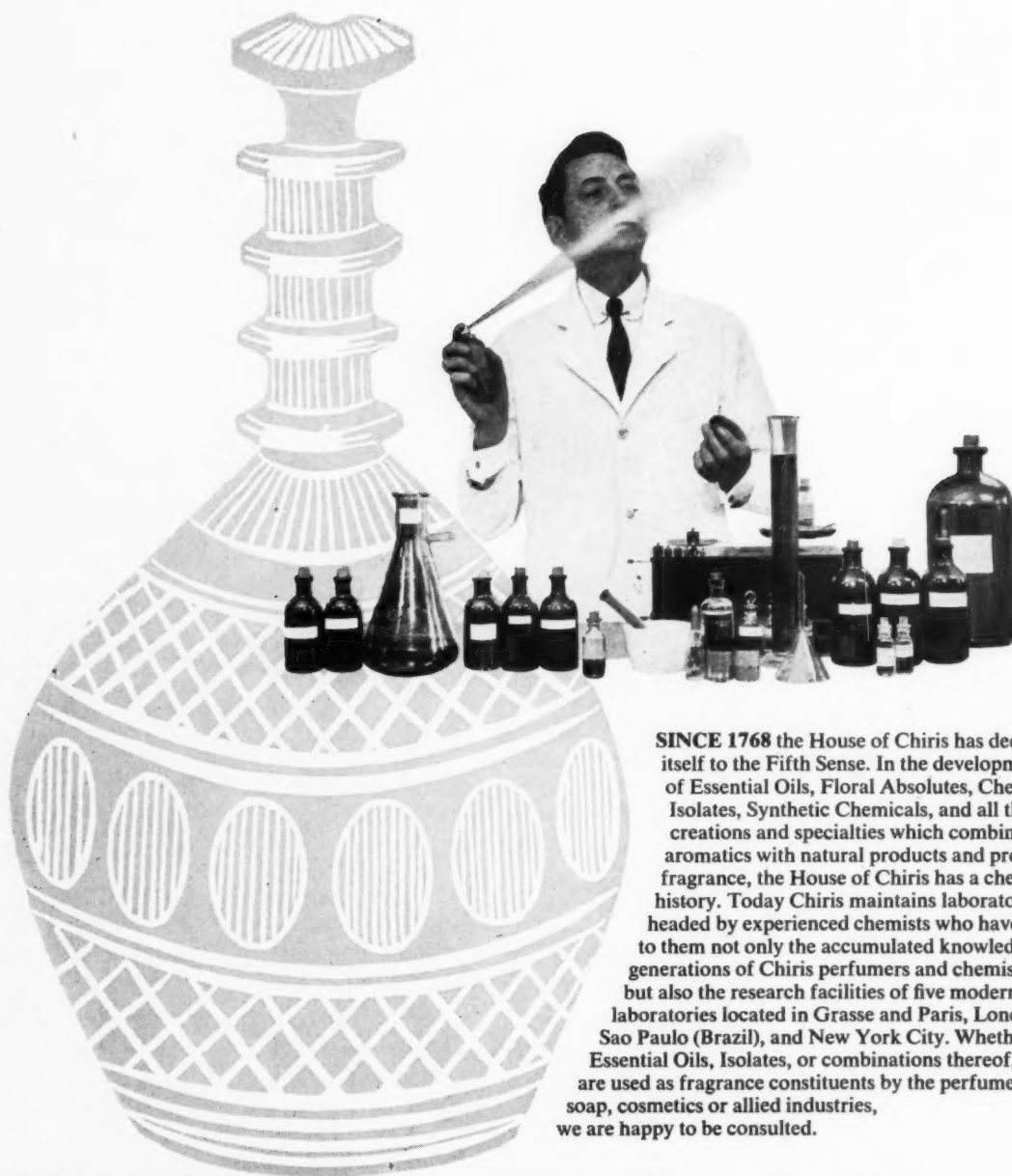
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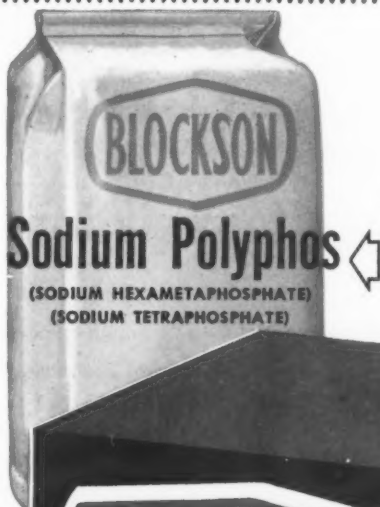
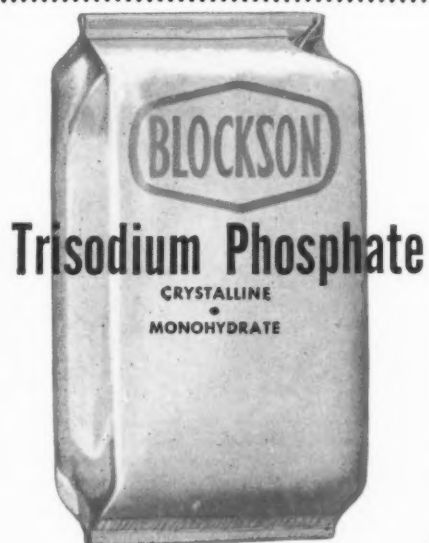
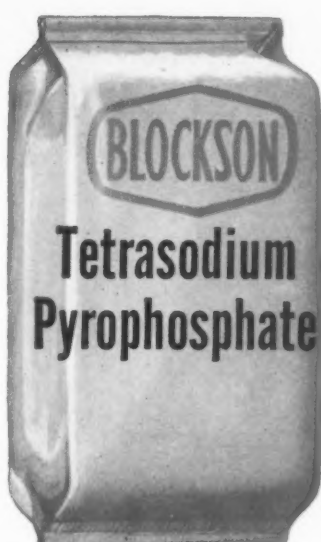
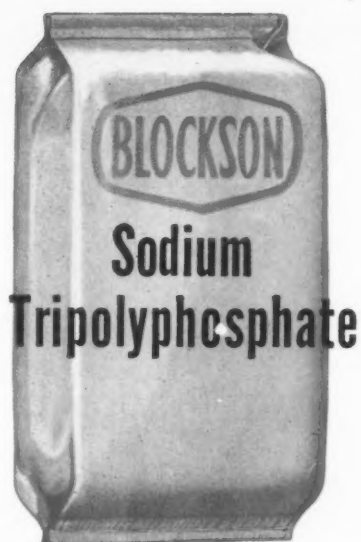
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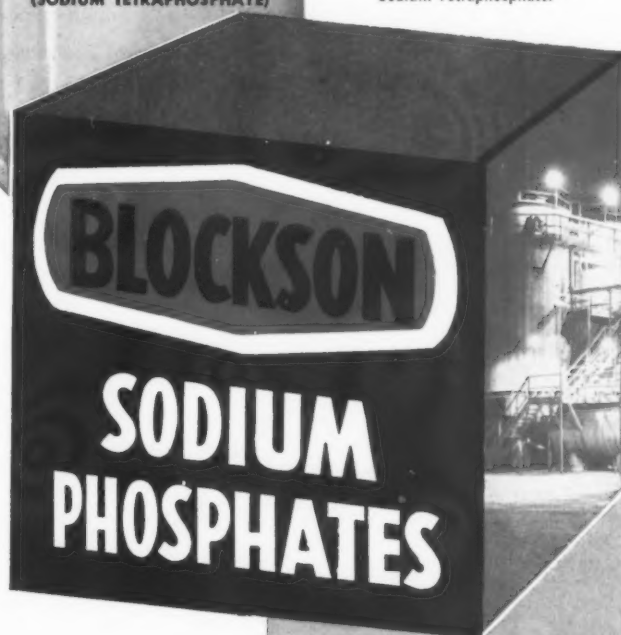
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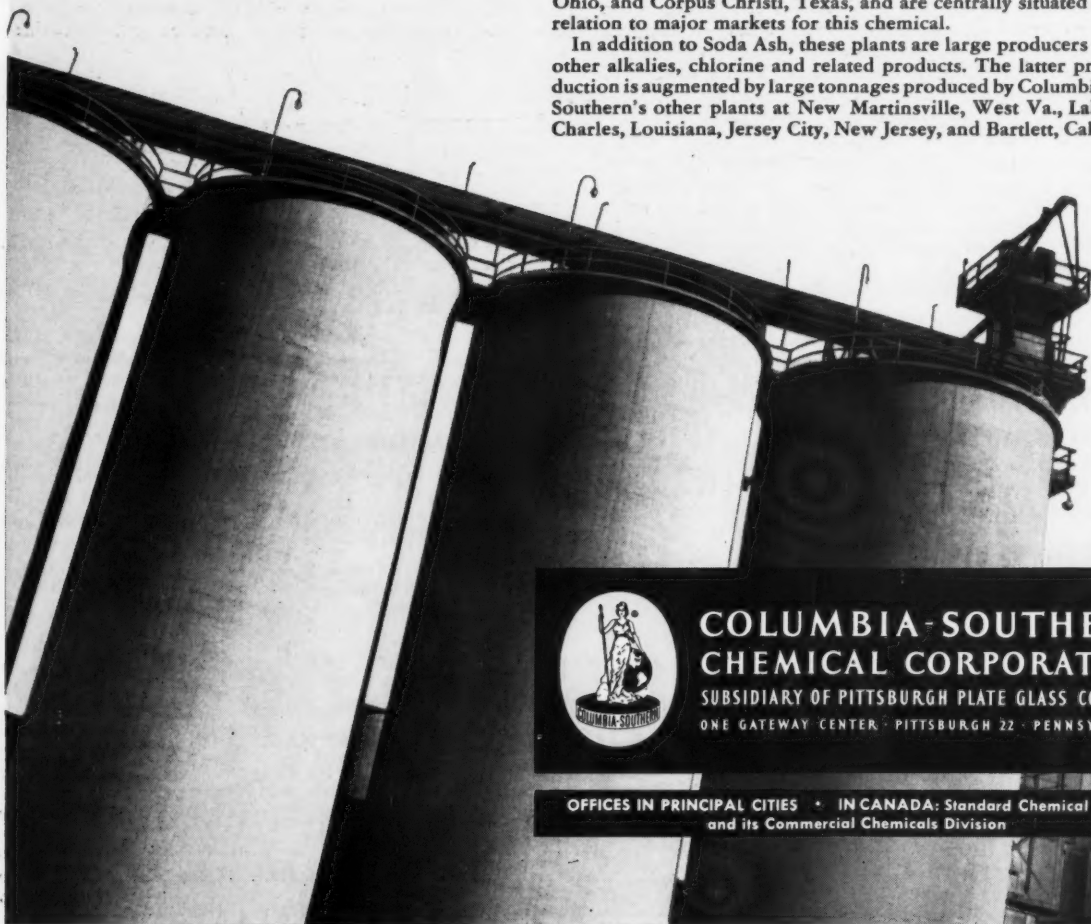
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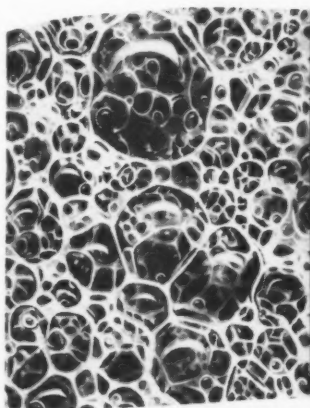
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M

After Closing...

George A. N. King Dies

George Alexander Newton King, 86, one of the founders of McLaughlin Gormley King Co., Minneapolis, died Mar. 5. He had been active in the company, both before and after its incorporation, for more than 50 years. Although his duties as secretary and a member of the board of directors of MGK since 1940, had been lighter than previously, he remained active in the affairs of the company until his death.

Mr. King is survived by his wife and two sons, Allen S. King, president of Western States Power Co. and George H. King, both of Minneapolis. Another son, Harold R. King, president of R. J. Prentiss & Co., New York, now Prentiss Drug & Chemical Co., died several years ago.

Drug Men Hear Nusbaum

The Associated Drug and Chemical Industries of Missouri heard William C. Nusbaum, assistant to the president of Emerson Electric Co., at the group's regular luncheon meeting held March 14 at the Chase Hotel in St. Louis. Another speaker was Maurice Falchero, director of exhibits of Mid America Jubilee.

New Dow Post for Webb

Dean R. Webb, for the past 12 years a salesman for Dow Chemical Co., Midland, Mich., has been advanced to supervisor of general chemical sales for the firm's Cincinnati office, it was announced recently by Donald Williams, vice-president and director of sales. In his new post Mr. Webb will be in charge of chemical sales in southern Ohio, southeastern Indiana, and sections of Kentucky and West Virginia.



Robert Avinger

Armour Chem. Names Two

The appointment of sales representatives in two new regional offices was announced recently by the Chemical Division of Armour and Co., Chicago. Handling sales of Armour chemicals in West Texas and New Mexico is Robert Avinger, while Lester Garrison will cover the southeastern section of the U. S.

Mr. Avinger, a graduate of Oklahoma University, is a chemical engineer with three years' experience in petroleum work. He is making his headquarters at Midland, Tex.

Lester Garrison has been in

Lester Garrison



sales training at the Armour Chemical Division for a year. Prior to that he was in the U. S. Air Force and stationed in Germany. His new headquarters are at Charlotte, N. C.

Wins Carbon Tet Death Case

A Florida jury has recently awarded \$160,000 in damages to the widow of a man who died following the use of carbon tetrachloride to clean the floors of his home. The jury found the defendant, Tampa Drug Co., guilty of negligence in labeling the product as safe for the use to which it was put. The case, No. 29168-L, was tried in the Circuit Court of the Thirteenth Judicial Circuit of the State of Florida.

The defendant contended that the use of carbon tetrachloride is not inherently dangerous to man and "attended with fatal risk." It also denied that the dead man died as the result of carbon tetrachloride poisoning, and affirmed that the label on the container was adequate to warn anyone of possible fatal effects. In addition, the defendant charged that the dead man failed to heed the warning on the label and contributed to his own death by this alleged negligence. This defense of contributory negligence, if successful, could have prevented the awarding of damages, the judge pointed out in his charge to the jury.

One of the points he called on the jury to decide was the degree of toxicity of carbon tetrachloride.

Labels authorized by the U. S. Department of Agriculture were read into evidence by the defendant. These, the judge pointed out, must be considered in their entirety, not any particular line. He called on the jury to determine whether in its opinion the entire label was sufficient for the purposes for which it was intended.

It is understood the defendant will appeal the verdict.

A four page single-spaced typed excerpt from the Court's charges to the jury has been compiled by John D. Conner, legal coun-

sel for the Chemical Specialties Manufacturers Assn. This excerpt is being mailed out to all members of the C.S.M.A.

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CSMA Names Committee

The following committees of the Chemical Specialties Manufacturers Association and their chairmen for 1956 were announced recently by E. G. Klarmann, Lehn & Fink Products Corp., New York, CSMA president:

Executive, H. E. Peterson, Peterson Filling and Packaging Co., Danville, Ill.; Budget and Finance, P. C. Reilly, Reilly Tar & Chemical Corp., Indianapolis, Ind.; Policy Advisory, Donald M. King, Masury-Young Co., Boston; Legislative, Robert J. Morse, Boyle-Midway, Inc., New York; Post Offices Conference, Melvin Fuld, Fuld Brothers, Inc., Baltimore; Precautionary Labeling, A. Haldane Gee, Foster D. Snell, Inc., New York; Toxicity, V. K. Rowe, Dow Chemical Co., Midland, Mich.; Membership, John R. Stoddard, Prentiss Drug & Chemical Co., New York; Program and Entertainment, James E. Ferris, Niagara Alkali Division, Hooker Electro-Chemical Co., New York; Arrangements, H.W. Hamilton, secretary, Chemical Specialties Manufacturers Assn., New York; Greetings, Robert Peterson, Peterson Filling and Packaging Co., Danville, Ill.; Publicity and Public Relations, Frank R. Zumbro, E. I. du Pont de Nemours & Co., Wilmington, Del.; Associate Members, M. Lemmermeyer, Aromatic Products, Inc., New York; Publication Advisory, Ralph A. Downing, E. I. du Pont de Nemours & Co., Wilmington, Del.; Moth Control, D. J. Templeton, Stanley Home Products Co., Easthampton, Mass.

In addition committees and subcommittees of the six divisions of which CSMA is composed were announced at the same time.

— ★ —

AOCS Meets April 23-25

About 50 papers will be presented in concurrent sessions at the 47th annual spring meeting of the American Oil Chemists' Society, it was announced recently by J. D. Lindsay of Texas A & M College, program chairman. The meeting will be held at the Shamrock-Hilton Hotel, Houston, Tex., Apr. 23-25.

The annual business meeting, which opens the convention, will be held Monday morning, Apr. 23, and the closing business session is scheduled to follow the close of the tech-

nical session on Wednesday, Apr. 25.

William Argue of Anderson, Clayton Co., Houston, is general chairman of the meeting at which new officers for the coming year will be announced. They are elected by mail ballot. Incumbent vice-president, T. H. Hopper, head of the analytical, physical-chemical and physics section of the Southern Regional Research Laboratory, New Orleans, incumbent vice-president and membership chairman, automatically becomes president of the society. Candidates for vice-president are J. T. R. Andrews, a chemist in the technical service-factory analytical department of Procter & Gamble Co., Cincinnati, and Dr. H. C. Black, associate director of research of Armour & Co., Chicago.

The eighth short course on unit processes in the fatty oil, soap and detergent industries will be held at Purdue University, Lafayette, Ind., July 16-20.

The fall meeting of the society will be held at the Sherman Hotel, Chicago, Sept. 24-26. A. F. Kapecki of Wurster and Sanger, Inc., and C. W. Hoerr of Armour & Co., both Chicago, are co-chairmen.

— ★ —

Named by Semet-Solvay

Semet-Solvay Petrochemical Division, Allied Chemical & Dye Corp., New York, announced Mar. 7 that it would use the services and facilities of Thompson-Hayward Chemical Co., Kansas City, Mo., chemical sales firm to make possible improved warehousing and technical service for Semet's A-C polyethylene accounts throughout the Midwest and South Central areas of the United States.

Thompson-Hayward will market A-C polyethylene through sales offices and warehouses located in 17 states: Minnesota, Nebraska, Kansas, Missouri, Arkansas, Oklahoma, Texas, Louisiana, Alabama, Mississippi, the southern portion of Illinois and Indiana, and the western portion of Iowa, Kentucky, Tennessee, Georgia and Florida.

Two Becco Appointments

Alfred M. Bretschger has been appointed plant manager of the Vancouver plant of Becco Chemical Division of Food Machinery and Chemical Corp., Buffalo, N. Y., it was announced late in February by F. A. Gilbert, Becco vice president. Mr. Bretschger replaces Henry P. Vogt, who becomes plant manager of Becco's main plant in Buffalo. At the same time Richard E. Elden was appointed to the newly created position of production manager at the Vancouver plant.

Mr. Bretschger has been with the company since 1948, having served in various engineering and production posts in Buffalo. Prior to that he was with the United States Army for three years.

Mr. Elden joined the firm in Buffalo in 1946, later moved to the state of Washington, re-joined Becco in 1951 and has been acting in the capacity of chief chemist since that time. He served with the Navy during the Second World War.

— ★ —

Ionescu to Alcolac

Ernest Ionescu has joined the development department of American Alcolac Corp., Baltimore, Md., it was announced recently. He was formerly associated with Nopco Chemical Co., Harrison, N. J., and with B. T. Babbitt Co., New York. In his new post he is concerned with initial sales and development of newly introduced surface active agents.

— ★ —

Hart Opens Labs

The opening of new research and development laboratories in Jersey City was announced late in February by Hart Products Corp., New York. The new facilities replace those destroyed by fire in January 1955. In addition to 4000 square feet floor space equipped to accommodate fifteen chemists, a separate laboratory room contains glass and lead lined reactors as well as other equipment for large scale process development work. Textile testing apparatus, including a laundrometer, a three-roll laboratory padder etc. have been installed.

Stauffer Advances Begley

Appointment of James H. Begley as western division sales manager for industrial chemicals of Stauffer Chemical Co., New York, was announced recently by R. U. Haslanger, director of industrial sales. Mr. Begley, who had been Chicago district sales manager, will make his headquarters in San Francisco. He has been with Stauffer's sales department for the past 12 years.

New Dow Research Center

A new biochemical research building was opened officially on March 7 by Dow Chemical Co. in Midland, Mich., at a cost of \$1,100,000. Headed by Don D. Irish, biochemical research director, Dow's biochemical research department is already installed in the building's 26 laboratories and eight animal rooms. Nearly square in design and on one story, the center is air-conditioned throughout, with only one window in the main lobby. It has a floor area of 46,000 square feet, currently houses a staff of 64 with space for about 30 more workers.

Founded by Dr. Irish in 1933, the department conducts research in toxicology, industrial hygiene, microbiology, and product

development as well as basic research.

In the microbiology laboratory bacteria and molds are studied. Compounds to preserve or protect paints, wood products, paper, fibers, food products, etc., have been the fruit of this work. The search continues for pesticides, weed killers, wood preservatives and other products.

The center's architect was Al-

den B. Dow, a son of Herbert H. Dow, the company's founder.

Frascati Joins Lueders

A. T. Frascati has joined George Lueders & Co., New York, as technical consultant and specialist on basic materials and compositions, it was announced recently by Frederick J. Lueders, president. Dr. Frascati has previously been associated with Firmenich Inc., New

Front view, showing lobby, of Dow's modern building for biochemical research.



Dr. Don D. Irish, who founded the biochemical research department of Dow Chemical Co., Midland, Mich., in 1933. Architect for new biochemical research building was Alden B. Dow, son of Herbert H. Dow, the company's founder.

A sensitive way to detect activities of microorganisms is to measure respiration. Dr. George L. Ellman is shown using a Warburg microrespirator for this purpose in Dow's modern biochemical research building, which has just opened.



York, for a period of 13 years. He is a charter member and past president of the American Society of Perfumers.

— ★ —

van Ameringen Names Two

Two new directors were elected to the board of van Ameringen-Haebler, Inc., New York, it was announced early this month by A. L. van Ameringen, chairman. The new directors are Mrs. William T. Haebler, who is also a director of Kurth Malting Co., Milwaukee, and Henry G. Walter, Jr., partner in the law firm of Fulton, Walter and Halley. Mr. Walter is also on the board of Heyden Chemical Co., New York, and of St. Maurice Chemical Co. of Canada.

— ★ —

CCDA Award to Ballman

Donald K. Ballman, general sales manager for Dow Chemical Co., Midland, Mich., received the 1956 honor award of the Commercial Chemical Development Association at the group's 12th annual banquet, held March 9 at the Statler Hotel, New York. Elected for the honor "as a result of his pioneering work, leadership, and accomplishment in product development work," Mr. Ballman is the 17th recipient of the award. With Dow since 1935, he organized and became manager of "Dowicides" sales in 1937. He was named the first head of the firm's technical service and development group in 1943. Mr. Ballman was advanced to assistant general sales manager in 1945 and assumed his present position in 1949. He is a charter member of the technical service association, predecessor of CCDA.

— ★ —

Truchan Joins Cowles

Anthony Truchan Jr. has joined the research staff of Cowles Chemical Co., Cleveland, it was announced in February by John B. Davidson, Cowles research director. Dr. Truchan will be located at the firm's research laboratories in Skaneateles Falls, N. Y. Prior to joining Cowles he had been a senior research chemist.

'55 Soap Tonnage Off, Dollar Volume Up

HIGHLIGHTS of the soap and detergents sales statistics for 1955 is a 0.7 percent increase in the dollar value of soap sales in the face of a 6.4 percent decline in tonnage. The implications of this ratio are commented upon in our editorial column. Sales of synthetic detergents now account for 63.2 percent of the total market according to the figures released by the Association of American Soap & Glycerine Producers, who collect and report sales figures supplied by member companies.

Sales of synthetic detergents, solid and liquid, in 1955 amounted to 2,317,478,000 pounds valued at \$540,916,000 compared with 2,063,276,000 pounds and \$475,422,000 in 1954. This represents a 12 percent increase in tonnage and 13.8 percent in value. Liquid detergents accounted for 153,008,000 pounds

valued at \$72,550,000 showing an increase of 28.8 percent over the 118,792,000 pounds reported in the previous year. Solid syndets sold in 1955 amounted to 2,164,470,000 pounds at \$468,367,000 compared with 1,944,484,000 pounds in 1954.

Total sales of other than liquid soaps in 1955 were 1,310,504,000 pounds worth \$312,810,000. Corresponding figures for 1954 are 1,407,705,000 pounds and \$311,708,000. Liquid soap sales showed an increase: current figures are 4,995,000 gallons and \$7,257,000 against 4,451,000 gallons and \$6,246,000 in 1954.

Combined total tonnage sales of soaps and synthetic detergents showed a 4.6 percent increase in 1955 over the previous year. It will be remembered that the total tonnage sales in 1954 declined 0.2 percent from the 1953 figure.

Total soap & detergent sales reported by AASGP members in 1955:

	Pounds	Dollars
Soaps other than liquid	1,310,504,000	312,810,000
Liquid soaps	4,995,000*	7,257,000
Total sales value		320,067,000
Bar toilet soaps, incl. mechanics	494,247,000	152,760,000
Laundry bars, white	169,358,000	31,646,000
Laundry bars, yellow & other than white	57,903,000	6,639,000
Soap chips & flakes, pkgd.	66,741,000	17,900,000
Soap chips & flakes, bulk	99,173,000	11,308,000
Soap, granulated, powdered, sprayed, pkgd.	249,648,000	57,774,000
Soap, granulated, powdered, sprayed, bulk	93,112,000	10,608,000
Washing powder, pkgd.	5,187,000	483,000
Washing powder, bulk	19,512,000	1,478,000
Hand paste	6,887,000	735,000
Hand powder	8,003,000	1,346,000
Paste & jelly soaps	16,999,000	2,347,000
Liquid soap, other than pkgd. shampoos	4,558,000*	5,413,000
Liquid soap shampoos, pkgd.	437,000*	1,844,000
Shaving soaps, stick, powder, cake	3,726,000	2,410,000
Shaving cream, excluding brushless	16,986,000	14,973,000
Misc. or "other" soaps	3,022,000	403,000
Synthetic detergents, solid	2,164,470,000	468,367,000
Synthetic detergents, liquid	153,008,000	72,550,000
Total	2,317,478,000	540,917,000
Solid syndets, excldg. shampoos, pkgd.	2,070,141,000	445,919,000
Solid syndets, excldg. shampoos, bulk	75,949,000	11,903,000
Liquid syndets, excldg. shampoos, pkgd.	13,313,000*	50,493,000
Liquid syndets, excldg. shampoos, bulk	4,684,000*	9,384,000
Solid detergent shampoos	18,380,000	10,545,000
Liquid detergent shampoos	1,129,000*	12,673,000

* Expressed in gallons.

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the story behind the headline

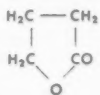
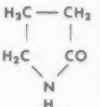
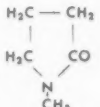
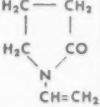
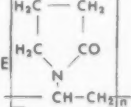
For those of you who have not been eating, sleeping and breathing high pressure acetylene reactions as we have, a brief reminder on the background of these products may be in order. In the early 1930's, Dr. J. Walter Reppe, working in Germany, licked the previously "impossible" problem of handling acetylene efficiently and safely at high temperatures and high pressures in chemical syntheses. This led him and his group into varied investigations which resulted in the synthesis of numerous chemicals which had previously been completely unknown, or at best only obtainable by elaborate and expensive reactions.

Even though widespread work in this field has continued steadily up to the present, and the laboratories of General Aniline in this country have been engaged in their own independent research for more than ten years, vast and challenging areas of research still remain for exploration in the new branch of chemistry involving high pressure acetylene reactions.

When the GAF laboratories began synthetic work in the new field, none of the products they turned out had ever been available in the U.S. in commercial volumes and at commercial prices. We, therefore, found it necessary to do some rather fancy, long-range extrapolating from the physical and chemical properties of all of the products to their potential applications and sales volumes in order to decide which would be of greatest immediate industrial value. Following these decisions came sales development, application research, and process development in the laboratory and pilot plant. Finally, the plant stage has been reached for the first group of products now to be made at GAF's new Calvert City plant.

They are a related series resulting from the reaction of acetylene with formaldehyde to yield a mixture of butynediol and propargyl alcohol. In a relatively brief time they have developed an astonishing and, we must confess, in part unexpected range of applications about which GAF's Commercial

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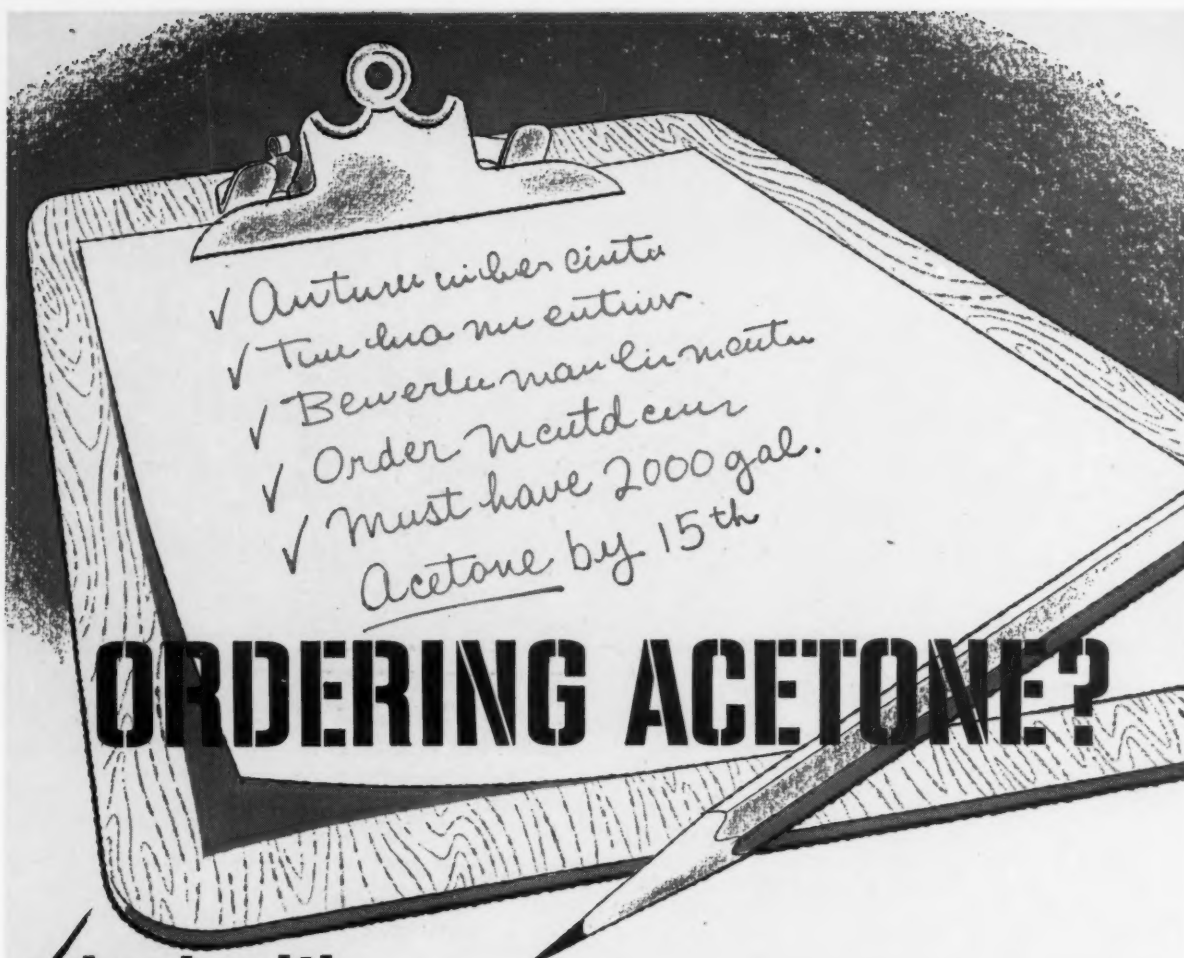
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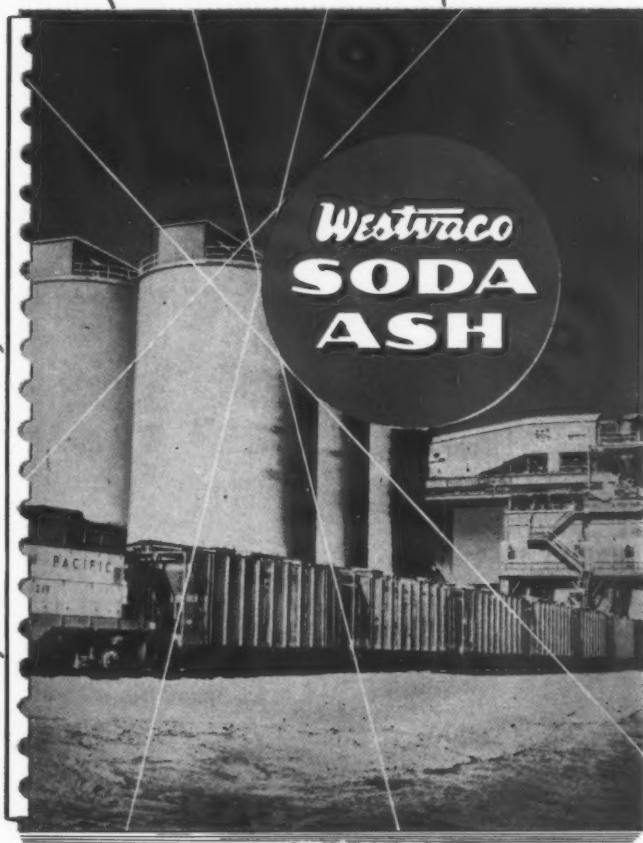
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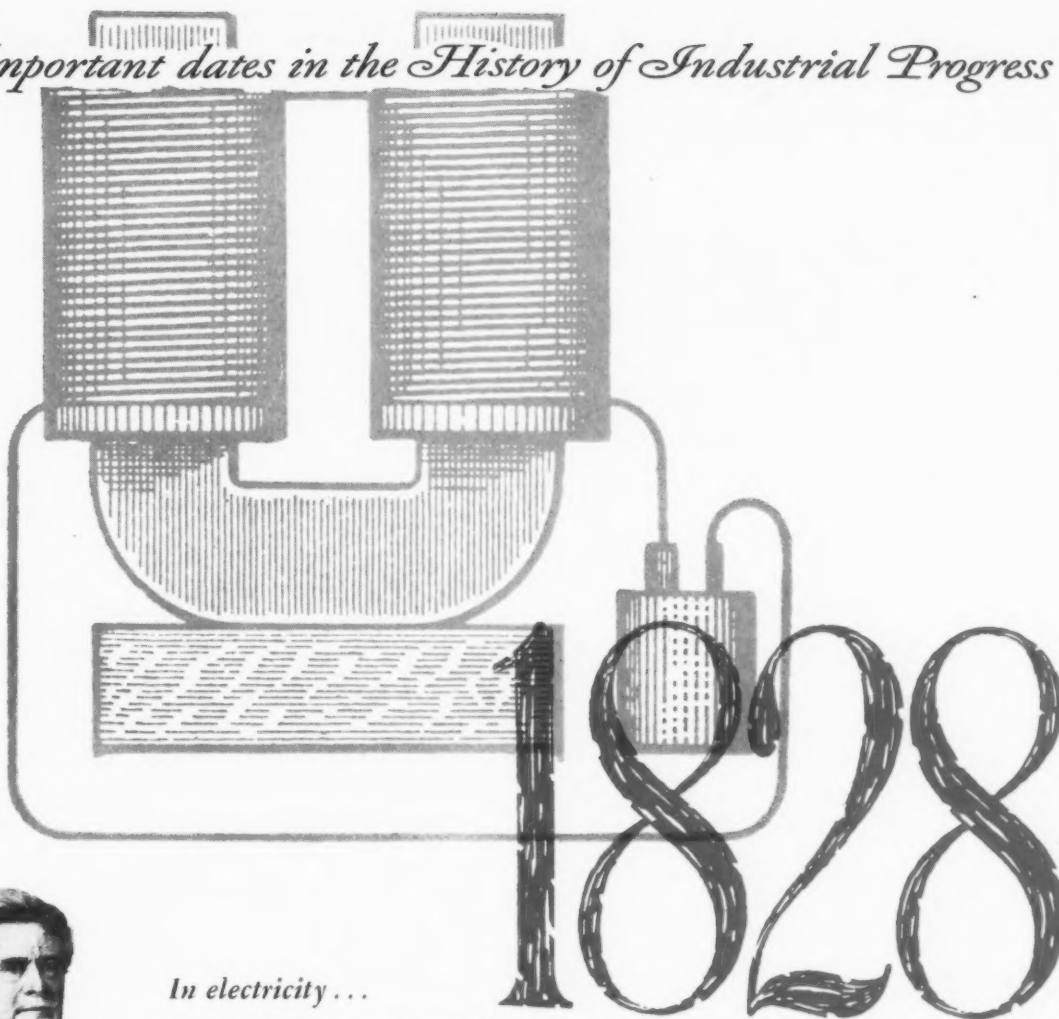


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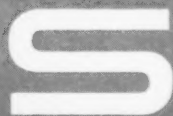
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KEYNOTE TO BETTER SHAMPOOS

ORVUS
WA PASTE

ORVUS
ES PASTE

High foaming, cosmetic grade lauryl sulfates.

ORVUS
K LIQUID

ORVUS WA PASTE—

A heavy bodied sodium lauryl sulfate. Ideal for compounding cream paste shampoos. A versatile alkyl sulfate, it can also be used for compounding a complete range of liquid cream and clear liquid shampoos.

ORVUS ES PASTE—

A modified sodium and triethanolamine lauryl sulfate—modified for greater sudsing, improved clarity, more fluidity, and lower costs. Exceptionally well suited for compounding clear liquid and liquid cream shampoos. Can be used with both acid and alkaline additives, conditioners, emollients, etc.

ORVUS K LIQUID—

A modified highly concentrated ammonium lauryl sulfate—modified for increased sudsing and mildness. Exceptionally low cloud and pour points. Highly fluid and easy to handle. Ideal for clear liquid and liquid cream shampoos where high foaming is required.

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Improved foam stability . . . improved detergency as well as cost savings can be effected in lauryl sulfate and alkyl aryl sulfonate detergent formulations with the new Stepan high purity amides. These new products are all diethanolamides, offering exceptional purity and a particularly low amide ester content. They are guaranteed to have an amide content of 90% minimum, a free amine content of 7% maximum and a .5% maximum acid value.

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purity**

**more
efficient**

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performance**

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◆ **P-616**

A high active lauramide. The amide content is 94% minimum lauric amide.

STEPAN

◆ **P-621**

A high active amide of diethanolamine, containing the lauric and myristic amides in the ratio of 75% and 25% respectively.

STEPAN

◆ **P-650**

A diethanolamide based on coconut fatty acids.

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Have you ever stopped to count how many different types of soaps and detergents you have in your house at one time? Today, "soap" is a specialist. Its new and improved properties, benefiting home and industry alike, are significant examples of applied chemical research.

Fast-moving soap makers depend on their lines of chemical supply. Sudden new chemical needs are as normal as doubling the use of a standard raw material. To anticipate and provide for these diverse requirements, Olin Mathieson offers a unique program of *coordinated planning and production*. This assures soap makers of the availability of chemical raw materials

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Right now, a growing number of chemical consumers are coordinating their planning and production with Olin Mathieson . . . America's prime producer of basic industrial chemicals. Olin Mathieson's long experience and familiarity with the broad market picture can prove invaluable in *your* planning. Why not consult with us . . . now?

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NOPCO HYONICS

HYONIC PE 250

(100% active nonionic alkyl aryl polyether alcohol)

Gives high, persistent foam
Effective over wide range of water hardness and pH
Excellent wetting agent and emulsifier
Extremely stable in presence of acids, alkalis, inorganic salts including heavy metal salts
A powerful detergent
Suggested uses—dairy detergents and milkstone remover, car wash, antiseptic sanitizer, paint and woodwork cleaner

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(100% active lauric acid alkylolamide condensate)

Superior foam stabilizer for anionics
Remarkable thickening action over a wide range of concentrations
Non-corrosive—can be stored indefinitely
Excellent detergent and wetter and shows remarkable synergism when blended with anionics or nonionics
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No, it isn't necessary to explore the universe for your detergent aids since Nopco Hyonics will undoubtedly provide just exactly the properties you need and Nopco technical men will work right with you to help you produce detergents of your own specifications.

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Nopco Chemical Company, Harrison, N. J.




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spotlight on

rancidity in oleic acids

how Emersol Oleic Acid eliminated rancidity in dry cleaning soaps



If rancidity in your product is objectionable, then you may profit from this actual experience: *Case History No. 35-54 . . . To reduce complaints of odor in cleaned clothes, this well-known manufacturer of dry-cleaning soaps evaluated the resistance to rancidity of all available high-quality oleic acids. His tests proved conclusively that Emersol 233 LL Elaine gave his product maximum resistance to rancidity . . . far better than any other oleic acid tested. In this case, not only were "odor" complaints reduced substantially, but an important sales advantage was gained over competitive dry cleaning soaps. Likewise, the substitution of Emersol 233 LL Elaine for the double-distilled oleic acid in your formulation will give your product maximum resistance to rancidity during storage and use. This, coupled with Emersol 233's outstanding color stability and oxidation stability, will make your products more appealing, stay appealing longer, easier to sell. So . . . buy Emersol 233 LL Elaine when you need the best in oleic acid.*



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Plastolein Plasticizers
Twitchell Oils, Emulsifiers**

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*New York; Philadelphia; Lowell, Mass.; Chicago; San Francisco; Cleveland; Ecclestone Chemical Co., Detroit
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Soap manufacturers, the world over, acclaim the Jones Toggle Operated Soap Press as superior—in construction—operation—performance. This worldwide demand results from outstanding advantages:

Noiseless, vibration-free operation over a long period of years.

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R. A. JONES & COMPANY, INC.


Cartoning Machines - Soap Presses

P. O. BOX 485

CINCINNATI, OHIO


... in brief

as the editor sees it . . .

 CASTILE SOAP . . . The term, "castile soap," doesn't mean what it used to in the good old days, says Mrs. Veronica Conley, secretary of the committee on cosmetics of the American Medical Association, in an article in *Today's Health*. Well, Mrs. Conley, you can say that again. Used to be that castile was a straight olive oil soap. No more. Today "any bland white soap" is castile, says the lady. What does she mean, white? How about a pink or blue castile especially for baby's bath?

After years in the courts, says Mrs. Conley, the term, castile, ended up just about meaningless, and "the continued use of this meaningless term adds to the confusion of the consumer concerning cleaning agents in general." Does it? If so, we fail to see the connection.


* * * * *

 SEWAGE FOAM . . . As the evidence on foaming at sewage disposal plants continues to come in, we are inclined to believe, as has been pointed out by several experts, that the detergent content of sewage is incapable of producing foam in sufficient quantities to cause complaints. Rather, it seems to us, increased population and many over-worked sewage disposal plants might be more important factors in the problem. Sewage plants working at 110 per cent of capacity, as many are, could be an important contributing cause.

Speaking before the Soap Association recently, Frank J. Coughlin pointed out that when the froth at sewage plants develops to "photogenic heights," it brings newspaper publicity which invariably associates it with detergents. Foam in the washtub, foam at the sewage plant. They are the cause and effect in every reporter's


mind. But the evidence is not all in. More is to come. The Soap Association has already appropriated \$128,000 to study the problem.

* * * * *

 SUSPICION . . . What is the effect of a cut price? In other words, what does the customer think about it? Recently, the Better Business Bureau of Pittsburgh looked into the matter and came up with the conclusion that a cut price arouses suspicion in the minds of over 80 per cent of buyers. They consider advertising which offers a cut price as the main reason to buy as exaggerated, misleading or false. If the price is cut, they figure, something must suffer, probably value, quality.

If a price is cut, maybe it was too high in the first place. Maybe the merchandise is inferior. Maybe somebody else would cut even more. These are the doubts that arise. Honest merchandise, honestly priced? If so the buyer doesn't believe it. Psychologically, a price cut is all bad. It reveals a basic weakness of some sort in the sales method of the seller, a weakness which takes its toll in the profit column. Blame it on competition or whatever you will. Its chief offspring is still a suspicious buyer.

* * * * *

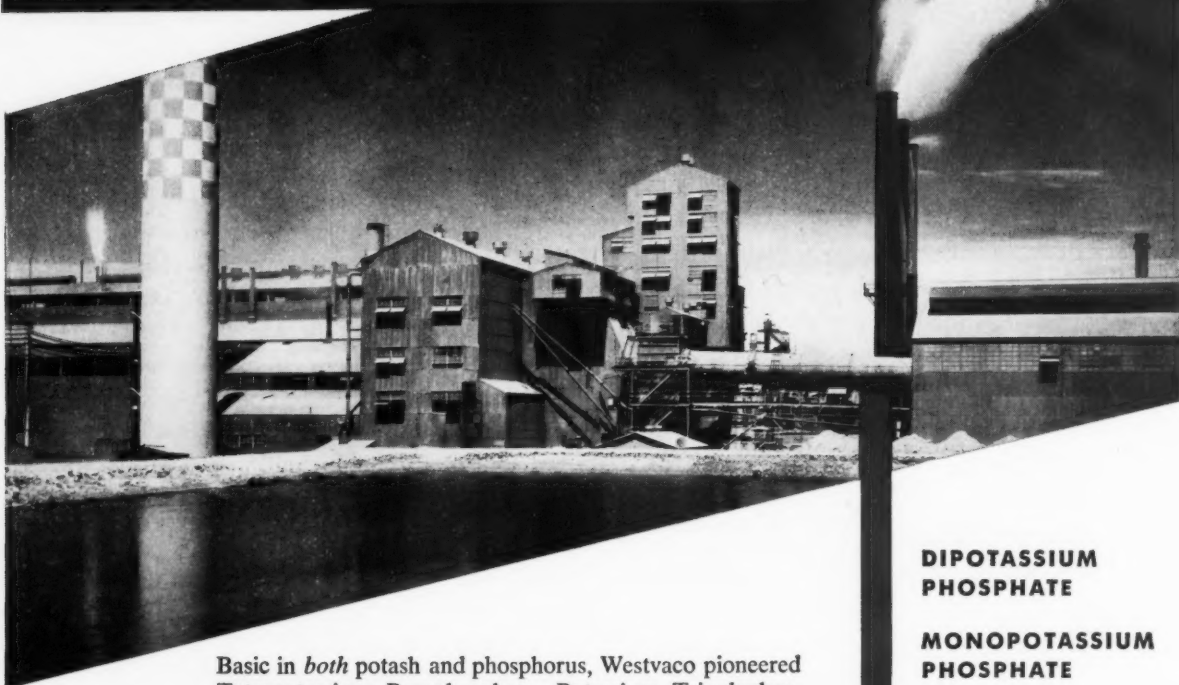
 AEROSOL FEARS . . . Well, we mentioned some time ago that it could happen,—financial promoters hopping on the aerosol band wagon, getting their investors in on the ground floor in this relatively new good thing. The product in question, we note, is being marketed on the West Coast by a group unknown in the field of aerosols. Actually, it's

First *these many years in*

POTASSIUM PHOSPHATES

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Rubber, Electroplating, Rust Inhibitors,
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Basic in *both* potash and phosphorus, Westvaco pioneered Tetrapotassium Pyrophosphate, Potassium Tripolyphosphate and other widely-used potassium phosphates... is still in the forefront of the expanding uses for these products. No other producer can serve you so widely and so well.

So whatever your present and probable needs for potassium phosphates, let us give you the benefit of our long and diverse experience in their uses. You can minimize inventory, be sure of uniform quality and get low delivered-price when you order WESTVACO phosphates.

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PHOSPHATE**

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FMC CHEMICALS INCLUDE: BECCO Peroxygen Chemicals • WESTVACO Alkalies, Chlorinated Chemicals and Carbon Bisulfide • NIAGARA Insecticides, Fungicides and Industrial Sulphur • OHIO-APEX Plasticizers and Chemicals • FAIRFIELD Pesticide Compounds and Organic Chemicals • WESTVACO Phosphates, Barium and Magnesium Chemicals

a radiator paint which has been converted to use as a sort of combination hair dye and lacquer. Tests of the product show it to be fundamentally faulty, unsuitable for the purpose for which it is advertised and sold.

No matter whether its market life is long or short, it can and will hurt all aerosol products. And this raises the \$64,000 question. What can the legitimate aerosol marketer do to protect his interests against market invasions of this sort? Frankly, we don't know. The public's imagination is fired by new things. That's the reason promoters use them. Look at uranium.

* * * * *



BLAME . . . This fellow was waxing a car with one of these combination cleaner-waxes. The car was dirty, very dirty. Not even the road dust and grime had been wiped or washed off. But the wax was being put on right over the dirt. The grit was being ground right into the finish with a large motor-buffer. When the job was finished, and it was done in no time at all, the car looked pretty good. The millions of fine scratches were not apparent at the moment. But in time, and with a few more treatments of this kind, the car finish is certain to suffer. And then the fellow whose garage did the job will be looking around for somebody to blame. We can just hear him say: "It's that lousy So-and-So Wax. From now on, we'll quit using that stuff!"

* * * * *



DETERGENT EVOLUTION . . . When liquid detergents for dishwashing hit the market not too many years ago, they created only a relatively mild stir. Failure was predicted for them in some quarters on the basis that the American housewife would not pay the price for a relatively small bottle of a dishwashing compound, no matter how concentrated or meritorious.

But the predictors were wrong. Liquid detergents went to town for home dishwashing

and are still moving ahead. In addition, during the past few months new heavy duty liquids have come to market which have created considerable of a stir. If they are put across proportionately as have the dishwashing liquids, then the whole face of the detergent industry could be changed in the years immediately ahead.

Inasmuch as manufacturing and marketing liquids varies considerably from powders and the like, wide processing changes might take place in most "soap" plants. Packaging operations would have to be completely revamped. Carton use would drop off, while the use of cans and bottles would grow tremendously. Yes, the face of the industry could change. Speculation? Well, it could happen.

* * * * *



SOAP SALES . . . As anticipated, sales of detergents rose in 1955, compared with 1954. Sales of soda soaps declined. Liquid soaps went up. The increase in detergents was 13.8 per cent in dollars, 12.3 per cent in tonnage. Soda soaps declined 6.9 in tonnage, but showed an increase of about a half per cent in value. Significant! Liquid soap sales showed a rise in 1955, moving up 11.5 per cent in gallonage and 18.7 per cent in value. Some of the latter may have included a proportion of liquid synthetics without being noted as such.

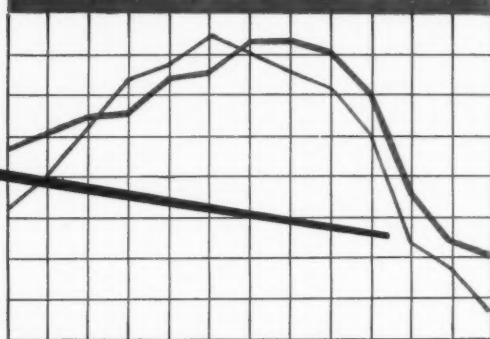
Notable in these Soap Association figures for 1955 is the increased dollar volume noted in all types of soaps compared to tonnage figures. In other words, this meant higher prices and probably better profits. At the same time, detergents showed relatively small price increases from 1954 to 1955. The increased dollar volume for soaps in 1955 obviously came from a greater spread between raw materials and finished products. Old line soapers were not so ready to cut prices, it would seem. Somewhere somebody got some sense and held out for a decent profit on soap making operations. The figures say it paid off, making up for some of the headaches of former years.

HE CUTS YOUR COSTS...

when he's put
to work in your shampoo



RAW MATERIAL COSTS



The ULTRAWETS wet, penetrate, clean, emulsify.

Have you met the ULTRAWETS, the alkyl aryl sulfonates that have saving ways with good shampoos?

Here's why you'll want to know them better . . .

ULTRAWETS in your shampoo formulation may help you to improve your present product. On top of that, these superior alkyl aryl sulfonates are far less costly than many other types of detergents and will lower your costs.

Add the inevitable consumer acceptance of these new shampoos, and you have a combination of advantages well worth going after. Let us help you. Our sales engineers will be glad to work with you to develop the ULTRAWET-base shampoo formulation to meet your performance requirements. Just send the coupon or write one of the offices listed.

THE ATLANTIC REFINING COMPANY

Dept. E-3, Chemical Products Sales
260 South Broad Street, Philadelphia 1, Pa.

Please send information on use of ULTRAWET in shampoo.

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Position

Company

Address

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PETROLEUM CHEMICALS

Philadelphia, Providence, Charlotte, Chicago

In the West: L. H. Butcher Co.

In Canada: Naugatuck Chemicals Division of
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In Europe: Atlantic Chemicals SAB, Antwerp, Belgium

In South America: Atlantic Refining Co. of Brazil,
Rio de Janeiro

SOAP and CHEMICAL SPECIALTIES

as the reader sees it...

Cocktail Parties

Editor:

With a good Irish name like yours and a good German name like mine, I guess we can both safely inveigh against cocktail party excesses without being branded a pair of bluenoses. At least I hope so, because I do emphatically agree with your comment on Page 27 of January SOAP. (Editorial calling for fewer trade cocktail parties.) And not only is this a problem during the holidays, but at meetings and conferences of many kinds all year round.

Enroll me accordingly as a charter member of your "Society." After that I think that you, as president, ought to set up a committee to study the matter. Wasn't it William James who used to talk about the "moral equivalent of war"? Maybe we need to look for the "social equivalent of ethanol." (James didn't succeed either.)

SAMUEL J. MILLER, CH. E.
Chemical Director

DuBois Company, Cincinnati

Well, we got one new member for our Anti-cocktail Party Society! Sam, you've been duly enrolled. Come to think of it, we suspect a bad hang-over might have influenced the writing of that editorial.—Ed.

Small Packages

Editor:

In the October, 1955, issue of *Soap & Chemical Specialties* you mentioned in an editorial on Page 35 that in Europe the trend is for syndets to be put up in small packages, even to the point of selling one-shot packages. Since this subject is of great interest to us we would like to know where you got your information, how we can obtain more details and from whom, and where can we obtain one or more samples of these small units.

STRAUCH & CIA, S.A.
Montevideo, Uruguay

The information on which the editorial was based was picked up in

conversations we had with ten European soap manufacturers who visited the United States last fall. One of the group with whom we discussed this subject was A. Pruvost, managing director, *Ettablissements Breton & Steinbach*, 7 Franklin Roosevelt Ave., Paris (Seine), France. M. Pruvost is also secretary of the French soap makers' association.

Plastic and other type packets for packaging small quantities of soaps and detergents are available from *Ivers Lee Co.*, 215 Central Ave., Newark, New Jersey, U.S.A. and *R. Hurwitz Co.*, 1013 Hearst Ave., Berkeley, California, U.S.A. Ed.

He Also Has Fallen

Editor:

Although friend Firsching's sense of scientific expression seems to have been greatly slighted, I am afraid he has fallen. (See letters to the editor page 71 January, 1956 SOAP.)

Or maybe in his rancor and enmeshed in the machinations of grammar (of which he is, no doubt, an expert)—or could it be he failed to see (?)—radio active decay is an exponential function and not a logarithmic one.

Or may be the editor should hire someone to edit.

W. H. Ross, Jr.
Detrex Corp.
Detroit, Mich.

Colgate Injunction

Colgate-Palmolive Co., Jersey City, secured last month a preliminary injunction which prohibits Jacob Gordon, doing business as Allen's Cut Rate Perfumers of Chelsea, Mass., from selling Colgate toilet goods at prices below the minimum resale retail prices established under the Massachusetts Fair Trade Act. The injunction was granted by the U. S. District Court for the District of Massachusetts. Products involved include "Colgate Dental Cream," "Halo" shampoo, and "Palmolive" brushless shaving cream.

Black to Cowles

Frank F. Black has been named manager of the newly established organic chemical department of Cowles Chemical Co., Cleveland, it was announced in February by C. C. Bassett, vice-president and director of sales. Mr. Black has been associated with the organic and pharmaceutical trade for the past 20 years.

Mr. Black's immediate responsibilities include the sale of Cowles' silicone compounds for the water repellency treatment of masonry. Later he will direct sales of other organic chemicals scheduled for early production in the firm's new plant in Skaneateles Falls, N. Y., Mr. Bassett said.

Missing Men . . . Altogether 533 men were photographed with Miss America at the reception of Fluid Chemical held in connection with the annual meeting of the Chemical Specialties Manufacturers Association, Hotel Roosevelt, New York, on December 6. When the shooting was all over, seven of these men remained unidentified. Their pictures are shown herewith. If any or all of these gentlemen will send word to Fluid, their photo with Miss America will be sent to them. Just tear out this page, check your photo and send your name and address to Fluid Chemical Co., 878 Mt. Prospect, Newark, 4, N. J.





From Tank Car To Boudoir

Dow Triethanolamine now reaches you . . . faster!

Shipment when you need it . . . supply you can depend on . . . a high quality that improves cleaning and cosmetic formulations. The newly expanded Dow Triethanolamine production gives you *all* these advantages!

Understandably, this greater volume assures you of prompt delivery, without irritating and costly delays. But let's look at *quality*, too. Refinements in the Dow production process make possible a high quality triethanolamine . . . better

emulsifying agents than ever before. These amides and soaps are practically neutral, non-irritating and have more effective cleaning action. Cleaning and polishing compounds can also benefit from the use of triethanolamine.

Eliminate your delivery headaches. Order your next shipment of triethanolamine from your nearest Dow sales office, or THE DOW CHEMICAL COMPANY, Dept. OC 850F, Midland, Michigan.

you can depend on **DOW CHEMICALS**



Radioactive soil for testing

Laundering in Home Washers

By **Florence Ehrenkranz*** Household Equipment Research Laboratory, Iowa State College

CONVENTIONAL techniques for determining washing effectiveness utilize reflectance measurements on standard soil samples and subjective evaluation by a panel of judges. A radioactive soil provides a new tool.

For industrial applications, a testing procedure using radioactive material can be made to compare in broad outline with the testing procedure using standard soil swatches. Small cotton swatches are soiled with a material that contains a radioactive component. The "activities" of the samples are measured. The samples are fastened to large cotton rectangles and enough additional rectangles are used to make a six to eight pound load. The load is washed in a household washer under the washing conditions to be investigated. After the load has been extracted in the washer, the samples are removed, air-dried, and their activities measured again.

The instruments and materials used in the tests with a radioactive soil can be less expensive than the instruments and materials needed for reflectance measurements. Instead of a reflectometer, a Geiger tube and scaler are used. The cost of the tube and scaler can be as low as \$550. The cost of the radioactive material for soiling can be as low as 20 cents a swatch. As for personnel, technicians who do reflectance measurements also can do routine radioactivity counting, under supervision.

This report describes tests

carried out in the Home Economics Division of the Iowa Agricultural Experiment Station.

Experimental Procedure

TRIPALMITIN, a component of olive oil, Wesson oil, and other fats, was synthesized "to order" to contain a radioactive carbon atom in place of one of its regular carbon atoms by Tracerlab, Inc.*

The active tripalmitin was dissolved in USP olive oil and the solution was applied to $2\frac{3}{4}$ -inch by $2\frac{1}{8}$ -inch swatches by means of a mechanical pipette. (The swatches had been cut from muslin bed sheets.) The soiled swatches were dried under vacuum and aged. The radioactivity of the oil on a swatch

was measured by placing the swatch on a holder in a Geiger tube housing, scaler and timer used for counting activities. The housing and the sample holder used inside the housing were made in the College Instrument Shop. The Geiger tube, scaler and the timer are commercial items.

The data recorded for each swatch were the times, in hundredths of a minute, required to reach a total count of 6400 before and after washing. The time to count to a pre-determined count (6400 in this case) was directly proportional to the amount of active material present. The difference between final count time and initial count time, after corrections for background, was thus a measure of the effective-

*The U. S. Atomic Energy Commission authorized purchase of the radioactive material.

Fig. 1. Geiger tube housing, scaler and timer used for counting radioactivity of soiled and washed samples.



*Journal Paper No. J. 2791 of the Iowa Agricultural Experiment Station, Ames, Iowa. Project No. 1157.

ness of the laundering procedures investigated.

Washing Tests

THE factors selected for investigation were two household washers of different makes; water temperatures of 120° F., 140° F., and 160° F.; soft wash water with soap, soft wash water with detergent and hard wash water with detergent.

Three loads of 36 pieces each of desized cotton (Indian Head) rectangles 20 inches by 32 inches were assembled. Each load weighed approximately 7.3 pounds. One load was used for the soft water washes with soap, another for the soft water washes with detergent, and the third for the hard water washes with detergent. Ten soil swatches were used for each washing test. One end of a soil swatch was stapled to the center of a large rectangle. The 26 rectangles that did not have attached swatches functioned solely to simulate a household wash load.

The water supply for all the washes was a college well. The hard well water averaged 24 to 25 grains calcium carbonate equivalent per gallon of water during the period required for the experiment. Soft water (0 to 0.5 grains per gallon) was obtained by passing hard water through a household size Zeolite water softener. The concentration of the high-sudsing built detergent in the wash water was 0.14 percent for soft water and 0.40 percent for hard water. The concentration of the built soap in soft water was 0.20 percent. These concentrations were selected after preliminary testing of several concentrations. When more

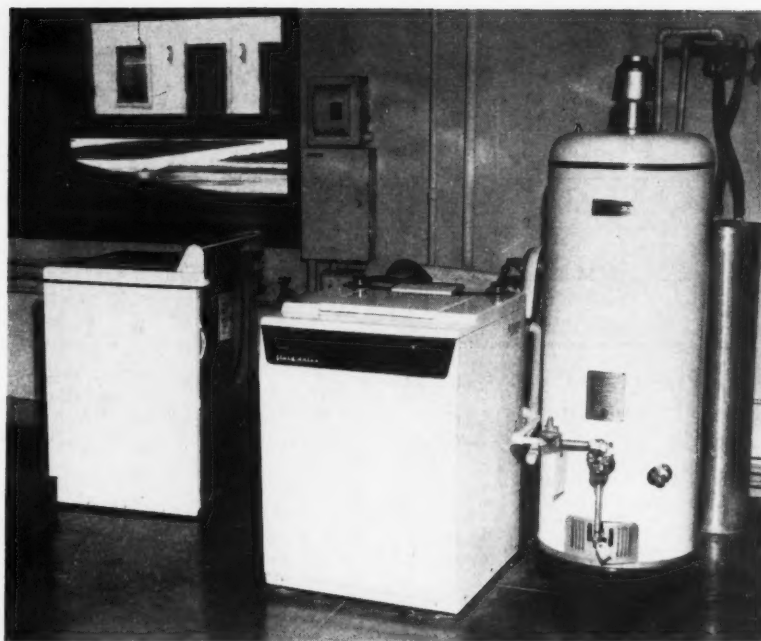


Figure 2. Water softeners, heaters, washers and dryer used in laundering tests.

soap or detergent was used, a substantial suds (comparable to the original) would be produced in a second wash at 140° F. with no soap or detergent added in the second wash.

The regular cycle of the household washers was used with a 10-minute wash time. At the end of the cycle, the swatches were removed from the large rectangles and air-dried.

Figure 2 shows partial views of the laboratory in which the laundering tests were done. One water heater was used for heating soft water and the other for heating hard water.

The experimental data are summarized in Table 1 in overall totals for three replications. An an-

alysis of variance was applied to the data from which the totals given in Table 1 were obtained.*

The analysis showed that the difference between washers was not statistically significant, i.e., the difference was no greater than would be expected from chance variation. The differences between temperatures of wash water were significant. A temperature of 120° F. gave poorer washing results than temperatures of 140° F. and 160° F. when all washing conditions were considered. The differences between detergent-water conditions were significant. Soap with soft water gave

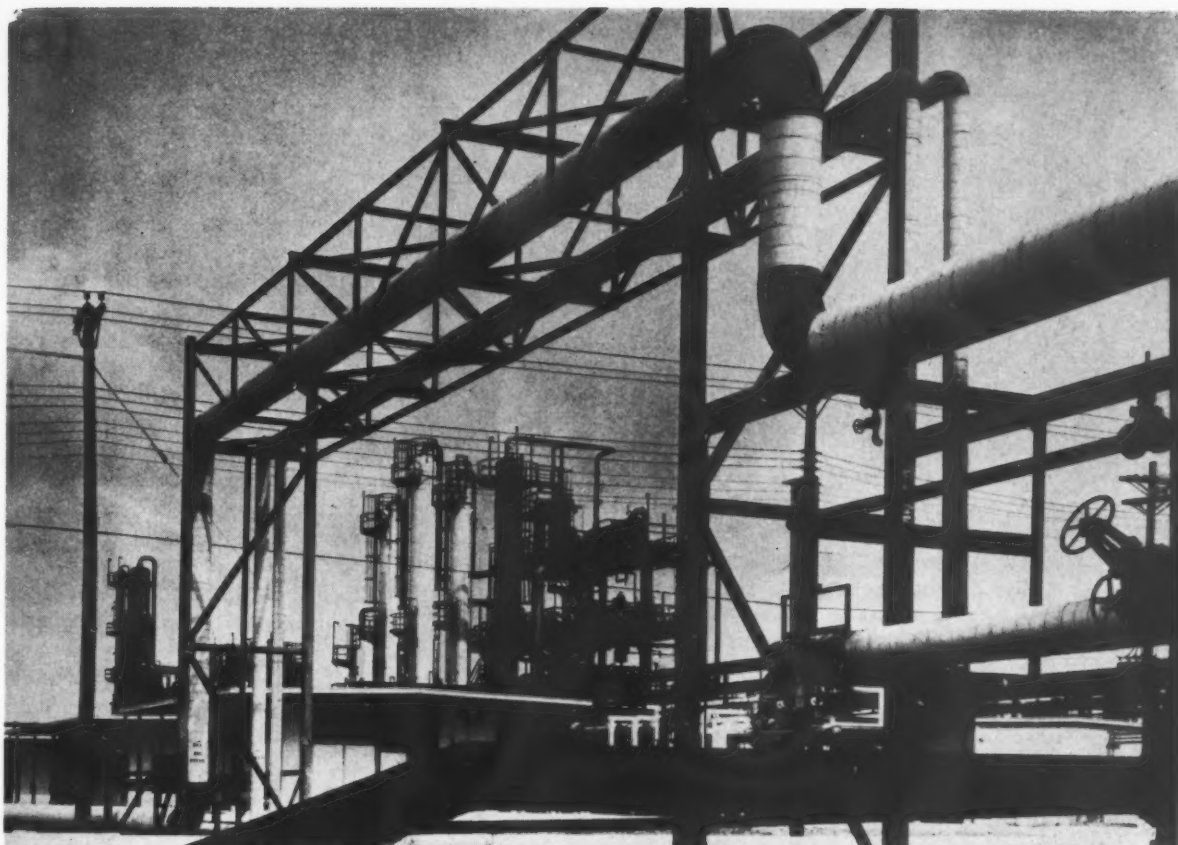
(Turn to Page 197)

*The "experimental design" or pattern for doing washes under different test conditions and the analysis of variance were prepared by Dr. Emil H. Jebe of the Iowa State College Statistical Laboratory.

Table 1. Coded Results of Laundering Tests with Radioactive Carbon in the Soiling Agent²⁵

Temperature	Machine 1		Soap Soft Water	Sums	Machine 2		Soap Soft Water	Sums
	Detergent Hard Water	Detergent Soft Water			Detergent Hard Water	Detergent Soft Water		
120° F.	293.69	284.09	302.30	880.08	287.06	287.99	302.44	877.49
140° F.	293.77	295.71	319.69	909.17	296.15	298.57	310.73	905.45
160° F.	298.18	301.12	311.44	910.74	298.70	301.73	316.64	917.07
Sums	885.64	880.92	933.43		881.91	888.29	929.81	

*Each entry in the table is the coded sum of 30 time differences in minutes after and before washing corrected for the following effects: overall mean, replication, machine and day. (The coding consisted in an addition of a constant to each entry.)



Synthetic glycerine plant of Dow Chemical Co. in Velasco, Tex., which began production recently. Plant is being expanded.

Trends in Glycerine

GLYCERINE did well in 1955. Domestic consumption appears to have been a near-record 235 million pounds. Moreover, the industry did well by its customers, meeting a surge in demand without precipitating panicky buying and its inflationary effects. The trend to the sale of refined glycerine on a longer term contract basis continued and contributed to market stability. Importation of foreign crude resumed its place in the picture as an important balance-wheel, raising the utilization rate of domestic refining capacity. New synthetic production made a well-timed entry at mid-year.

Thus, 1955 was a year which

*Paper presented at 29th annual meeting, Assn. American Soap and Glycerine Producers, Inc., New York, Jan. 26, 1956.

proved the important advantages of a dual-origin supply pattern to users. The government has recognized the value of a dual-origin source in case of military mobilization. And I suggest that it has important advantages for glycerine producers as well . . . even those concerned solely with crude.

By "dual-origin," of course, I refer to the fact that about one third of U. S. production is now synthesized from propylene, supplementing the glycerine derived from fat in soap-making and in making

fatty acids and their derivatives.

You will note that I say "supplementing" rather than "supplanting." In the future, the ratio of quantities produced by the two methods may raise a question as to just who is supplementing whom. But no one expects natural glycerine to be supplanted, in the sense that synthetic ethanol has supplanted fermentation alcohol. To the extent that spent soap lye or sweetwater from hydrolysis come into being, they are not likely to go down the drain under any conceivable com-

By E. S. Pattison*

Manager, Glycerine and Fatty Acid Divisions
Association of American Soap and Glycerine Producers

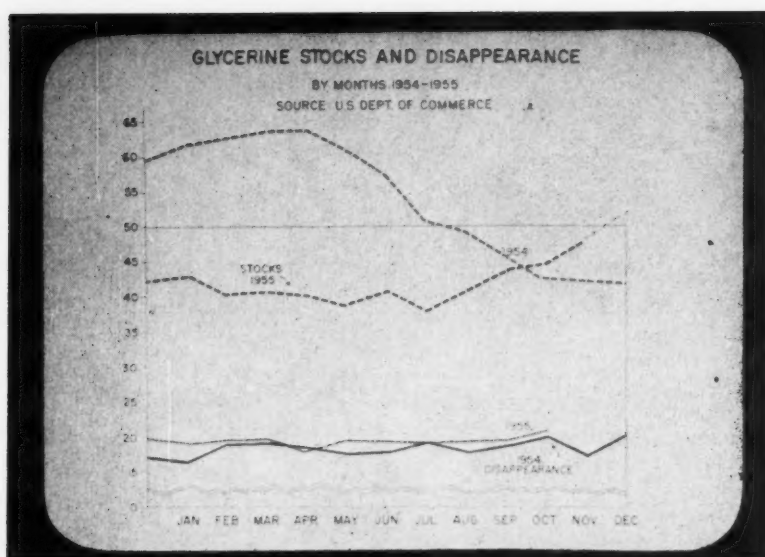


Figure 1. Glycerine stocks and disappearance.

petitive pressure. And in primitive countries, the economics inherent in larger-scale soapmaking are making for more complete glycerine recovery.

There is a lot of room for argument as to just how far detergents will ultimately go in supplanting soap, particularly in the more undeveloped countries which are increasing their per capita consumption of all cleanliness products. But whatever the level, the proportionate amount of glycerine will be entering world channels of trade. In 1955, for example, crude adding up to some 25 million pounds of glycerol was imported to the United States, and despite active exportation of refined glycerine, a net import level of at least 15 million pounds was obtained.

Suppose we accept the fact that crude production—though it may fall as detergents gain—is not to be cut back by other glycerine competition. We see then that economics dictate a unique community of interest between the producers of glycerine from the two separate sources. There will be internal competition for particular customers or particular markets, but it must always be secondary to inter-commodity competition . . . to get *all* the glycerine from the soap industry sold. For if a market need which has

been met by natural glycerine is lost to some other polyol or other non-glycerine product, the glycerine displaced will have to find a market elsewhere. Eventually, the producer of synthetic glycerine shares the loss.

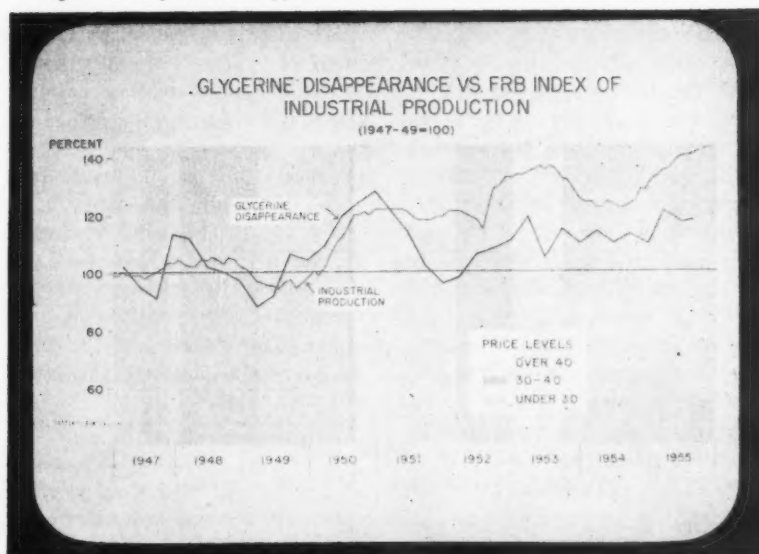
Conversely, the expansion of a market for glycerine, even though supplied by glycerine from a soap plant, opens up a sales opportunity somewhere else that would not otherwise have been open to the producer of synthetic glycerine. All market growth must eventually ben-

efit the plants which are independently expandable, rather than those producers of crude which have an output ceiling imposed by the demand for soap.

People sometimes ask why the glycerine industry happens to keep up cooperative education and publicity work. One answer is that glycerine is a commodity in competition with specialties. It lacks exclusivity on which a single producer can capitalize. But there are lots of other chemical commodities, like alcohol or acetone, which give no evidence of such community of interest. I suggest that an industry in which a substantial part of the production comes into being regardless of its producers' individual sales possibilities, will give *all* suppliers a positive, rather than a negative, concern for their co-producers' sales results. The hide and leather industry is another such example engaged in strong intercommodity competition.

Let me emphasize that the producer of crude glycerine is a distinct beneficiary of this community of interest, whether he refines his glycerine or sells it as crude. He may say: "How come, if glycerine were shorter, I would make more money" But the evidence of every speculative commodity is to the contrary. Those parts of our economy that have given the buyer a steady sup-

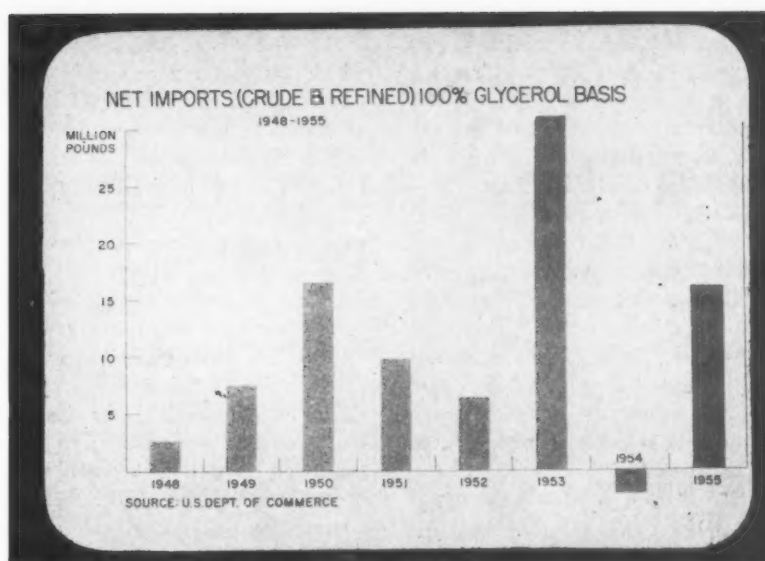
Figure 2. Glycerine disappearance vs. FRB index of industrial production.



ply source on which he could make reasonably long-term plans have prospered. A steady loss of markets has characterized the wide-swing commodities. One look at the farm field will prove it.

We have a slogan: "Nothing Takes the Place of Glycerine" which is true in the broad sense that no other product duplicates all of glycerine's valuable properties. But for every *specific* use for glycerine, at some sacrifice no doubt, there is a substitute or alternate making capital of the fact that historically, particularly in the war years, glycerine was unavailable or excessively costly.

To come down to cases, I have a chart (Fig. 1) which establishes quite specifically the benefits I am talking about. The upper curves represent glycerine stocks . . . in 1954 and 1955. The lower curves represent domestic glycerine usage. Now in these years, we had no wide swings in consumption but a sustained demand through the summer months when a decline is normal. At the same time, due to our lack of "output control" of glycerine as a co-product of declining soap output, the stock curve opened the industry up to the "anticipation-of-shortage" psychology that in the past, had often caused panicky buying on one hand and speculative



Net imports (crude and refined) 100 percent glycerol basis.

"holding back" of crude on the other. Perhaps one more "fling," such as the Korean War speculative period, would have sent researchers throughout the resin industry so industriously back to their laboratories that glycerine would have lost its frontrank position. As it is, glycerine remains the big-volume alkyd polyol—with a poundage adding up to some 18 or 20% of the total alkyd production of close to 400,000,000 pounds.

Two factors averted any swing to substitutes. First, the ex-

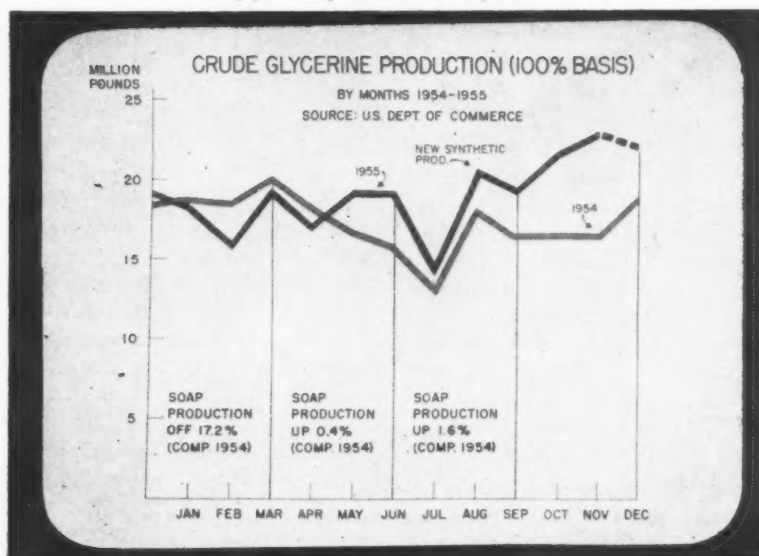
pectation of more synthetic capacity in the second half of 1955. Second, the tempering effect of such expectation on the holders of foreign crude.

We hear a lot about trends to other polyols in alkyds, and about other non-glycerine paint vehicles displacing alkyds. The fact that new glycerine construction has been brought in by companies who are deeply involved and fully informed on these competitive resin developments is quite significant.

A previous chart (Fig. 1) has shown an unusually steady glycerine consumption rate for 1955 totalling some 235 million pounds. Another way of looking at it is in comparison to business conditions generally, since so many uses for glycerine follow the general economic pattern. The curve shown in Fig. 2 is based on comparative index numbers. I think this is an antidote for complacency. We have sold a lot of glycerine, but we have not quite kept pace with our opportunities.

Probably no factor in the glycerine business arouses quite as much interest as the question: Is glycerine from soap-making still going to decline in volume? In 1955, for the first time, we find the decline came to a halt. In the second and

Crude glycerine production (100 percent basis)



third quarters specifically, 1955 soap production is almost identical in volume with 1954. Coupled with an increase in fatty acid and fatty alcohol production, offsetting to some extent the first-quarter decrease in soapmaking, we have estimated glycerine derived from domestic fats at some 146 million pounds, on a 100% basis. Synthetic glycerine production was apparently some 82 million pounds in 1955. Taken together with some 15 million pounds of net imports, we have 243 million pounds available, of which some eight million pounds have gone to increase stocks.

Figures ascribed to the Office of Defense Mobilization and the BDSA by Chemical Week magazine set synthetic glycerine capacity officially "in sight" at 110 million pounds per year, and the current operating rate apparently approaches this figure. In an emergency the plants might well do more.

As might be expected, the announcement late in September of the ODM that the glycerine goal had been advanced from 268 million to 325 million pounds attracted considerable attention coming, as it did, on the heels of Dow's active start in glycerine production. Also, Shell Chemical had already announced additional capacity. At least two substantial chemical companies not now in the field gave some study, at least, to the market situation.

Judging entirely by the announced policy followed for other projects, the government's glycerine mobilization goal was arrived at by adding projected military requirements to normal peacetime consumption rates. Also, according to the *Journal of Commerce*, ODM made the assumption that "capacity" is an inapplicable concept so far as natural glycerine is concerned, and a level of production based on continuation of current output is taken as a base. The expansion goal is tied in specifically to synthetic glycerine, though presumably this might include fermentation glycerine or that produced otherwise from carbohydrates as well as the syn-

thetic petrochemical product.

The economic questions which confront anyone interested in this unallocated capacity are formidable, totally apart from the technology involved, unless one were to assume that glycerine from fats will dry up entirely. When anyone calculates domestic use of glycerine from government figures, and projects the peacetime rate of market growth over the next few years, the figures fall substantially short of a consumption of 325 million pounds. Of course, important new demand might result if our advertising were improved upon, but no one has yet come in with the right "singing commercial." Unlike some newer specialties, glycerine has "been through the mill" so far as testing out the expansion of demand taking place with declining prices. Short of competition for the antifreeze market, no startling expansibility in the demand curve was shown.

Furthermore, as was indicated previously, it will be necessary for the new producer to assume that such natural glycerine as does come along has no "shut-down" point, in contrast to possibilities for supplanting the output of older, high-cost plants in other fields.

Alternative Product

ONE good possibility for a newcomer would be for a production process in which glycerine would be an alternative product to some highly salable intermediate, or derivative along the way. In an emergency, the switch-over to glycerine could then be made. If these alternate pathways offered peacetime products with applicability in captive use, all the better. It is certainly possible that many so-called glycerine derivatives . . . if produced directly from some other intermediates comparable to, say, epichlorohydrin at substantially lower cost than it could be made from glycerine itself . . . offer unexplored possibilities for market development. This is something quite different, however, from just "going into the glycerine business" as such because someone believes that soap is

doomed to be replaced by detergents!

Still another factor deserves consideration: Even assuming a shipping embargo which closed possible imports of crude, the production level of glycerine from fats might be substantially expanded in an emergency for reasons quite apart from the need for glycerine. Under such conditions the components of our petroleum-based detergents, appear to be in greater likelihood of short supply than inedible fats. A substantial shift back to soap, or possibly to detergents made from tallow and grease, could conceivably come about. We know that fat splitting capacity is well in excess of today's operating rates. So, too, is refining capacity for natural glycerine.

You may judge, therefore, that while I remain an enthusiast and expansionist for glycerine, of whatever origin, I have not been able to set my sights—from a rational economic standpoint—quite so high as the folks in Washington on the near-term expansion of synthetic capacity.

More important, I believe that users of glycerine in the resin field and elsewhere, can see in a level of some 250 or 260 million pounds of domestic glycerine per year . . . one-third to one-half synthetic . . . a fully adequate and stable source of supply, for at least the next three to five years. If one of our Glycerine Research Award winners comes through with a new tank-car volume application some day to prove me too conservative, that I will be happy to see.

Certainly, the continued cooperation of all producers of glycerine in seeking ways to widen peacetime markets, by enlarging the sound economic base of the industry, is contributing as well to the readiness for any emergency requirements. Our industry is making more glycerine and better glycerine on a sustained, premeditated basis, than ever before. Contrary to the implications of a recent chemical magazine headline "Glycerine Goes

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Factors affecting consistency of

Paste Cream Shampoos

By R. L. Patterson*

Procter & Gamble Co.

FOR some time many manufacturers of paste cream shampoo have tried to make a product that will have uniform body and texture throughout its shelf life. Certain techniques for increasing or decreasing firmness have become well known. Some of these have lasting effects and others do not. What we have sought is a product which will show a minimum of variation in firmness and smoothness over the normal range of storage temperatures. A product which performs well in this respect is said to have good consistency.

*Paper presented before the mid-year meeting of the Scientific Section, Toilet Goods Assoc., Dec. 14, 1955.

This report will deal with the results of our studies of some of the factors which affect the consistency of paste shampoos of the following general formula:

Sodium Alkyl Sulfate	
Paste†	70 to 80%
Sodium Stearate	6 to 9%
Stearic Acid	0.5 to 2.0%
Sodium Sulfate	0 to 3%
Lanolin	0 to 2%
Perfume	As desired
Preservative, dye, etc.	As required
Water	Remainder

Crystal Transformation

A review of the crystal shapes and transformations involved in this type of product is helpful in ex-

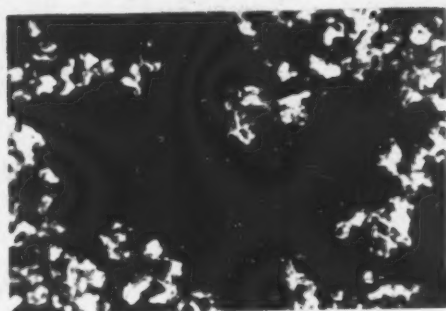
plaining some of the well-known inconsistencies which have been observed. The system consists of approximately 20% crystals in 80% aqueous isotropic liquor. In shape, the crystals may vary from plates to long fibers, a progression conveniently sub-divided as illustrated in Figure 1.

These photomicrographs were taken at 500 diameters with dark field illumination. They show:

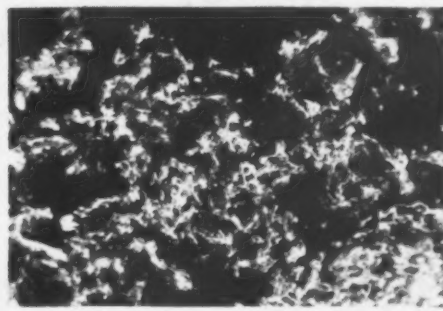
1. Fine platy crystals.
2. Bladed crystals which are somewhat longer than the platy type.
3. Short fibrous crystals.
4. Long fibrous crystals.

In size, these crystals are up

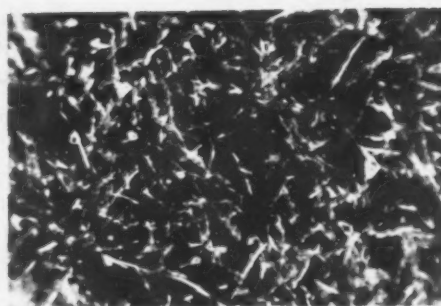
FIGURE 1
CRYSTAL TYPES



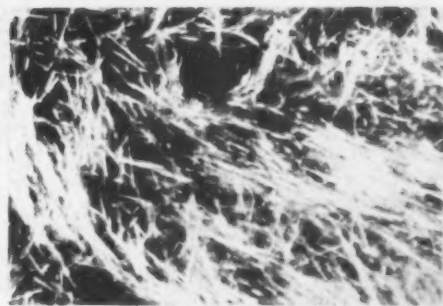
PLATY



BLADED

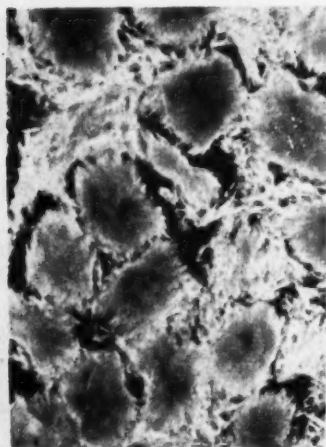


SHORT FIBERS

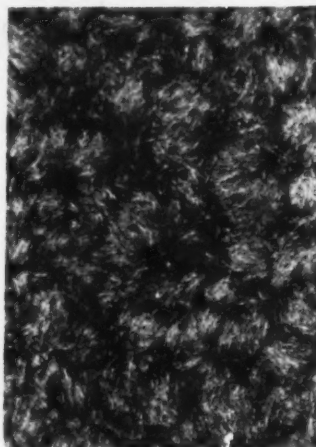


LONG FIBERS

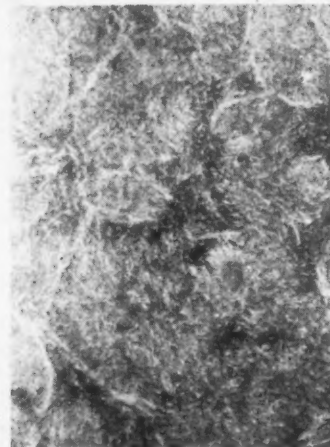
FIGURE 2
CRYSTAL STRUCTURES FOR DIFFERENT CONSISTENCIES



CURDLY



SATISFACTORY



EXTRA FIRM

to a few microns in thickness, 10 to 20 microns in width and up to 100 microns in length.

In order to obtain the proper shampoo consistency, it is necessary for crystal growth to take place at a controlled rate so as to produce a tangle of elongated crystals. Too rapid growth develops if a jar is chilled soon after packing and results in an almost pourable, glossy paste consisting of fine short crystals. Too slow growth can occur in very hot weather and leads to a soft product with a curdly texture and much free liquid. With suitable storage between these extremes, crystal formation occurs at the proper rate and gives a tempered product which retains good consistency at subsequent low or reasonably high storage temperatures.

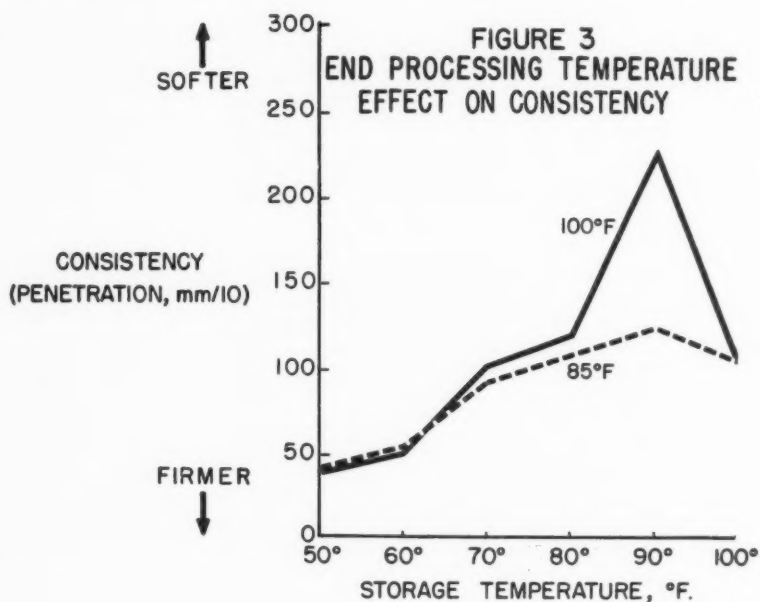
It can also be shown that product consistency is influenced by differences not only in crystal size and shape but also in the mode of aggregation of the crystals. The glossy product (low temperature softness) is the result of the formation of many small crystals which are too short and insufficiently aggregated. The resultant product has little strength. Mechanical shock

such as the vibration in normal shipping breaks it down to the extent that it may be soft enough to pour.

The curdly product (high temperature softness) is the result of the formation of large crystal aggregates. These aggregates are relatively few in number, and they tend to tumble over one another in the free liquor between them.

Properly formed crystals are fine to moderately coarse in size. In shape, they are long enough and entangled enough to form a mat which does not break under its own weight. They grow from many centers of crystallization and thus prevent the formation of distinct separable aggregates.

Photomicrographs again can be used to show examples of the



crystal formations which are responsible for different product consistencies (Figure 2). These photos were taken at 100 diameters. In the curdly product can be seen the crystal aggregates with areas of liquid in between. The product of satisfactory consistency shows crystal entwinement and the formation of a desirable mat. The product of extra firm consistency shows a still tighter matting of crystals.

It is also worthy of note that the crystals can exist in two distinct different crystal phases. Proof of the existence of these phases can be shown by X-ray diffraction patterns. Phase I exists between about 85°F. and the melting point of the crystals, i.e., 120° to 130° F. Phase II develops below about 85°F. and is the form in which the shampoo normally remains throughout its shelf life.

While the transition between Phases I and II usually take place at about 85°F., it can vary between 80° and 95°F. depending upon composition. This variation in transition temperature is no doubt partly responsible for some of the consistency differences shown by various production batches presumably handled in the same way. The transition is reversible, making it possible to convert Phase II

to I merely by warming to about 100°F. for a few hours.

Phase I (the high temperature phase) produces crystals which are always either short or long fibers, but Phase II varies all the way from fine plates to long fibers. It is this variation in crystal shape in Phase II which can be responsible for the difference between satisfactory and unsatisfactory consistency. And, of course, it is the rate at which the transition from Phase I to II takes place which controls crystal growth and subsequent consistency behavior.

Consistency Standards

IN these studies, we measured consistency in terms of depth of penetration into the shampoo during a fixed time cycle with a modified Universal Penetrometer. Our experience shows that no hard and fast limits can be set up for consistency. There seems to be a rather wide range of preference among consumers and manufacturers as well. However, for the storage temperature range of about 50° though 100°F., a minimum reading of approximately 50 for firmness, and a maximum of 150 for softness were considered acceptable.

In preparing the test sam-

ples for penetrating, storage conditions were selected to allow sufficient time for the desired equilibrium in crystal shape to be reached. Samples were held for twenty-four hours at 80°F. after packing, and for another twenty-four hours at a common penetration temperature of 70°F. prior to penetration. Between these conditioning periods, samples were held for three to seven days to observe the effect of controlled storage temperatures on the variables studied.

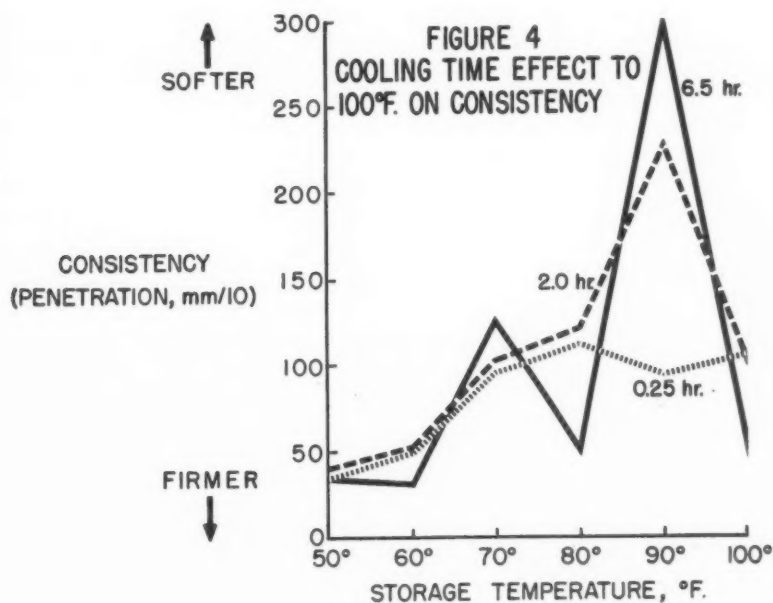
Process Controls

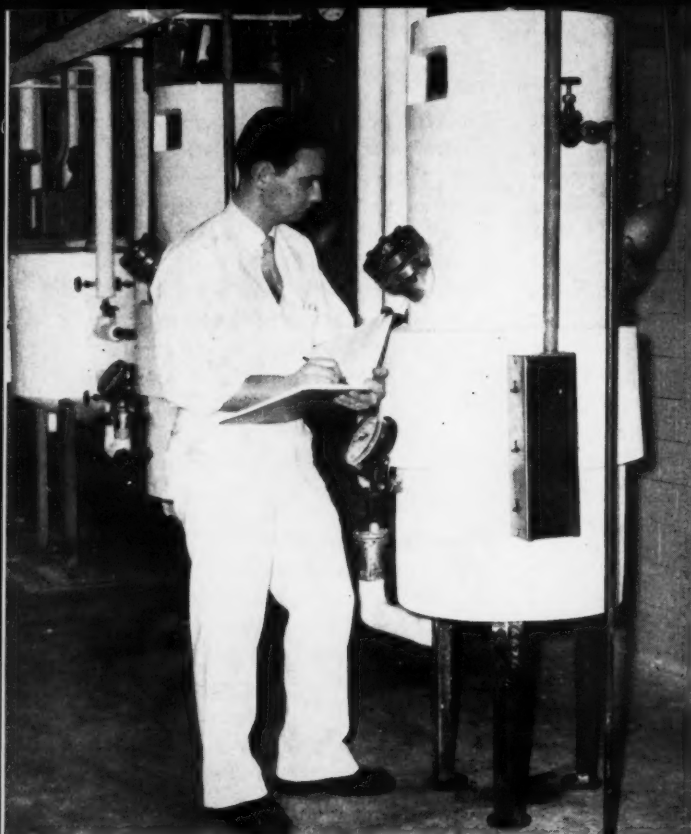
PASTE shampoo making is ordinarily completed at a temperature of about 170°F. The product is then cooled for packing. Since the melting point is between 120° and 130°F., hot packing can best be done at a temperature of 130°F. or above where the product is readily pourable. However, hot packing has some obvious disadvantages, the principle ones being: (1) proper control of crystal formation is difficult, (2) product shrinkage occurs on subsequent cooling, and (3) a dull appearance lacking in sheen is likely to develop.

In addition, upon cooling to about 120°F., a gel forms and noticeable firmness results. It is at this point that crystal growth begins. Likewise it is here where great influence over this growth can also be started. To pack hot makes it impossible to bring into play some final processing techniques which are quite important.

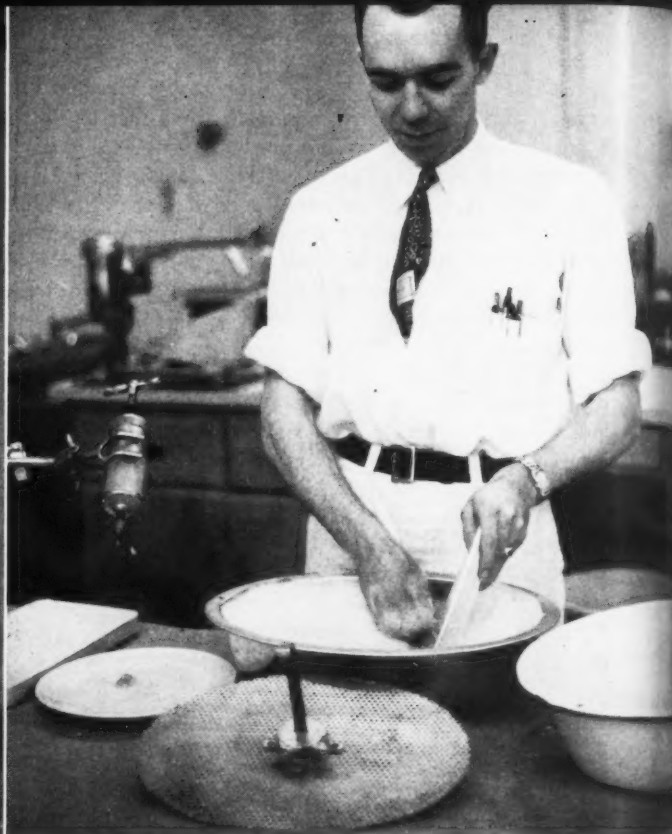
For example, the end processing temperature, which in many cases is the packing temperature, has a pronounced effect upon product consistency. Figure 3 shows the effect of 100° vs. 85°F. end temperatures. Since we are interested in product consistency, the flatter the curve the more uniform the product. It is obvious that less variation takes place in the product finished at 85° F. especially after storage between 80° and 100°F. Here it should be pointed out that suitable low pressure filling equip-

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Technician checks gauges during processing of edible oils in pilot plant located in basement of new research building.



Testing dishwashing performance of detergents. Device at left squeezes grease onto dishes in comparing detergents.

P & G of Canada Dedicates

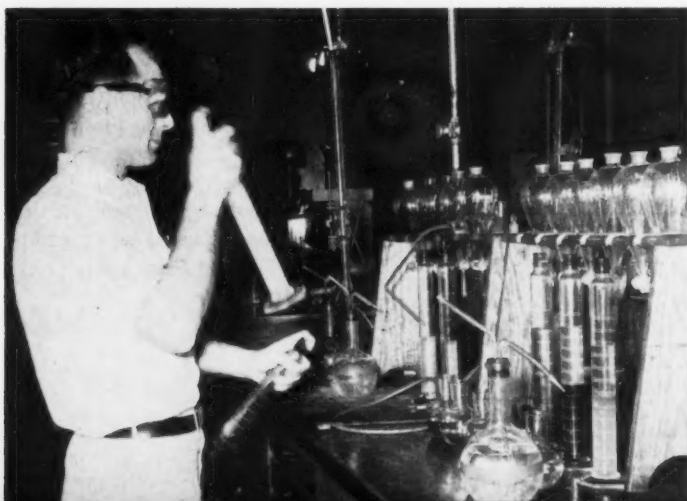
THE formal dedication of the new 12,000 square foot scientific research laboratory of Procter & Gamble Company of Canada, Ltd., at Hamilton, Ontario, took place recently. W. E. Williams, president and general manager of Canadian P&G, in dedicating the new product research and development building, which is across

E. Burlington St. from the P&G factory in Hamilton, stated that "the engineering work and architectural drawings have already been made for a 50 percent expansion."

Approximately 400 prominent figures from commerce, education and government visited the Hamilton plant of P&G on the day of the formal dedication.

The new product research and development building is a 12,000 square foot structure of Roman brick, and houses the company's scientific personnel and research facilities. The main floor of the building is lined on the street side with offices and study rooms. Across the corridor are the research facilities themselves: a general purpose

Quality control lab test to determine fat content of a shipment of tallow just received at P&G's Hamilton, Ont., plant.



Machine measures suds volume, amount of rubbing to produce it and durability of soap by drawing cloth over soap.





Close-up of entrance to new 12,000 square foot Roman brick faced research and development building at P&G Canada plant, Hamilton.

New Research Labs

laboratory, large washing and baking rooms and a laboratory devoted to the study of soaps and synthetic detergents. Much of the basement is occupied by a new shortening pilot plant.

Completion of the research building marks the sixth plant of the expansion program at Hamilton in the last eight years.

At the time of the dedication of the new laboratory, Mr. Williams announced that a multi-million dollar plant for processing shortening and edible oils will be constructed in the Montreal area this year by Procter & Gamble Company of Canada, Ltd., where only edible products are made.

Overall view of P&G Canada plant at Hamilton, showing new laboratory across Burlington St. from principal plant buildings, left center.



John R. Baillie, vice-president in charge of manufacturing, explained that some of the most important research equipment consists of home laundry and cooking appliances. They are used in tests to assure that laboratory conditions simulate those of the home.

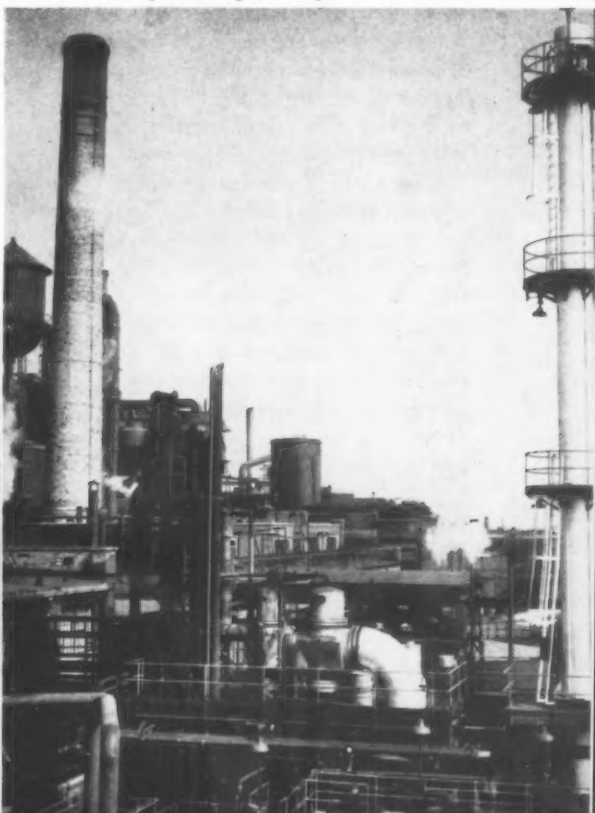
"Erection of a separate building for research represents a long stride forward for this important function in P&G," Mr. Baillie said. "With the growth of the company itself and the increase in products in recent years, we've been severely cramped in the small quarters we previously occupied in the edible production section of the plant."

The laboratory is designed to permit indefinite expansion of the building by extending either end.

The new research building will house 40 scientists and technicians.

In the past eight years, Mr. Williams pointed out in his dedication address, Procter & Gamble Company of Canada has introduced 16 new brands and sizes, has trebled its advertising budget and has raised its gross sales three and one-half times. Some of the employees at the Hamilton plant have been with the company for 39 years.

Soap and detergent production section of P&G Canada plant. Tower at right is hydrolyzer, key equipment in continuous processing of soaps.





Modern silicate plant of Philadelphia Quartz Co. at Andersonville, Ind.

Philadelphia Quartz Co. is 125

THE Philadelphia Quartz Company is celebrating this year its 125th anniversary. The celebration was inaugurated by a dinner for the personnel of the various departments at the general offices, and out-of-town representatives, and dinners for the personnel at each of the company's nine plant locations.

In observing their 125 years of continuous business the company has published a brochure "Respected Friend". This booklet tells the story of the company from its beginning in 1831 when the founder, Joseph Elkinton, opened a soap and candle factory at 377 South Second Street, Philadelphia. Joseph Elkinton had been trained as a silversmith but the manufacture of soap and candles appealed to him as a more suitable profession for a serious-minded Quaker.

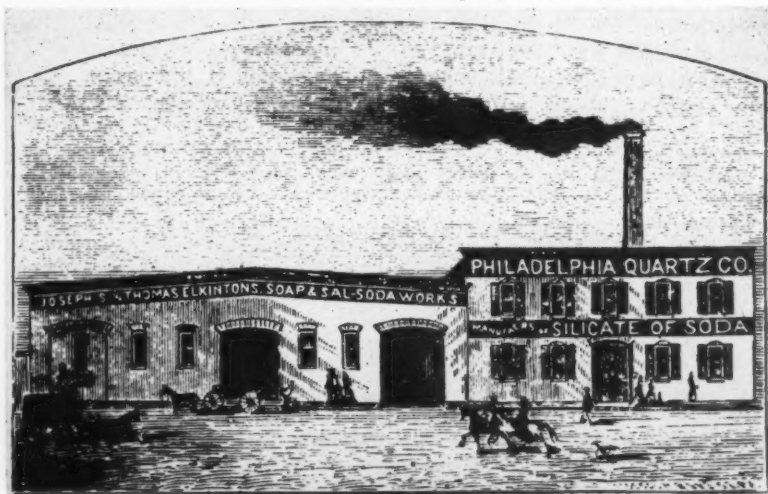
The business grew steadily and in 1855 Joseph Elkinton took his two sons, Joseph S. and Thomas, into the firm. Young Thomas showed particular enthusiasm for the technical aspects of the busi-

ness. Having been intrigued by an article in a scientific publication describing silicate of soda he set about experimenting with the promising and unusual chemical. This was early in 1858 and by mixing silicate of soda in the soap he learned that there was a decided improvement in washing action. Until the Civil War the sale of silicate to other soap-

makers was negligible. At that time southern rosin was not available to northern soapmakers and silicate was substituted. The improved detergency of silicated soap was enthusiastically received by customers; other soap makers became interested.

Today, silicate is universally recognized as an important basic

First Philadelphia Quartz Co. factory for manufacturing of silicate of soda at Ninth and Mifflin Sts., Philadelphia, dates back to 1864.



ingredient in soaps and synthetic detergents. Throughout the years, Philadelphia Quartz Co. in conjunction with soap manufacturers has proved the value of silicate first in bar soaps, then in spray-dried soaps and more recently as builders in synthetic detergents. Silicate has the unique characteristic of offering protection to sensitive metals such as magnesium, copper, zinc, aluminum and brass and is therefore especially important in compounds of synthetics and polyphosphates or other detergent alkalies which are themselves quite corrosive.

Soap Plant Expands

AS the kerosene lamp began to take its toll of the candle business more time and effort were devoted to silicate of soda and applications for its use. Soapmaking con-

many new uses for the versatile chemical. In 1889 growing business in the mid-west justified the opening of another silicate factory in Anderson, Indiana.

Early experimentation had shown the adhesive qualities of silicates, but it wasn't until the 1890's with the introduction of the corrugated shipping box that the first real use was made of silicate as an adhesive. Related uses such as laminating fibre sheets for box and wall board opened up almost simultaneously.

In 1905 the out-dated silicate plant at Philadelphia was replaced by a new factory in Chester, Pennsylvania to meet the increasing demand for silicate. At this time it was decided to concentrate the entire energies of the Philadelphia Quartz Company on the manufacture of silicate. Soapmaking was accordingly discontinued.

On its 100th anniversary, the company introduced sodium metasilicate and sodium sesquisilicate. They have since become important basic alkalies in the chemical industry, but this was the first time that these two detergents were offered commercially in stable free-flowing form. In 1955 on the eve of this century-and-a-quarter mark, a new product, an amorphous, finely divided silica was announced. The new chemical is useful in pharmaceuticals and cosmetics, lubri-

cating greases, varnishes and lacquers, printing inks, resins and plastics.

From the early days of research in silicates to the modern research laboratories located at Primos, Pennsylvania, the company has issued a steady flow of technical information on the character and uses of silicates.

"Soluble Silicates, Their Properties And Uses" a two volume publication by the late Dr. James G. Vail, a former director of the company, was released in 1952 by the American Chemical Society as its Monograph No. 116. It is the most complete treatise on this subject ever attempted.

Today soluble silicates are used in such industries as soap, paper, textiles, refractories, paperboard, oil, rubber, laundry, television, ore flotation, foundry and metal cleaning. Applications not related to a specific industry include the prevention of corrosion in water lines, coagulation aids in raw and waste waters, the solidification of porous earth, catalytic gels, and concrete hardening.

In addition to the Anderson and Chester units, plants today are located at Baltimore, Md.; Buffalo, N. Y.; Jeffersonville, Ind.; Kansas City, Kan.; Rahway, N. J.; St. Louis, Mo.; Utica, Ill. An associate company, Philadelphia Quartz Company of California, operates three plants at Berkeley and Los Angeles, California and Tacoma, Washington. Another associate is National Silicates Limited, with plant and office at Toronto, Ontario, Canada. A new plant in Valleyfield, Quebec will be constructed by the end of 1956.

Thomas W. Elkinton, great grandson of the founder is president of the eastern and Canadian companies, and a director of the California company. Directors of Philadelphia Quartz Co. are Thomas W. Elkinton, William Martin, James A. Norton, Chester L. Baker, John C. Russell, Charles E. Ramsey, Thomas Elkinton, John H. Barker,

(Turn to Page 85)

Years Old

tinued at the original plant but it became necessary to expand production for the manufacture of silicate. A larger factory was built in 1864 at 9th and Mifflin Streets, Philadelphia and it was then that the name of Philadelphia Quartz Company first appeared. By 1868 an impressive array of various silicate brands was carried in stock, attesting to

Extensive research is conducted in modern research laboratories of Philadelphia Quartz Co. at Primos, Pa.





Colgate's new "Launder-Lab Cruiser" will use supermarket parking facilities, as shown above, when touring various sections of the United States to study laundering and dish-

washing habits of housewives at first-hand. Station wagon will accompany bus and carry technicians and home economists, who will wash clothes supplied by housewives.

Soap and Detergent Research—

A MOBILE laboratory to study the effectiveness of soaps and detergents for laundering clothes and washing dishes under the water and soil conditions experienced by housewives in various parts of the United States was unveiled late in February by Colgate-Palmolive Co., New York.

The exterior of the "Launder-Lab Cruiser" looks like a trans-continental bus, while the interior resembles the laundry of a 1956 dream house. In addition to conventional laundering equipment, the bus carries a wide variety of the latest scientific laboratory equipment for on-the-spot studies of the effectiveness of soaps and detergents. The vehicle is also equipped with a small office area, complete with portable typewriter, desk and radio telephone. It also has a ship-style galley for preparing meals, a dressing room and toilet facilities.

Believed to be the first such unit of its type in the soap and detergent industry, the "Launder-Lab

Cruiser" was originated by the research and development department of Colgate and designed by its mechanical engineering division. One of the engineering highlights is the heating and air-conditioning system, large enough for a five room house. Power for heating and cool-

ing air, as well as for the fluorescent lighting system, for laundry equipment, for water heating, etc., is supplied by a generator trailer.

The unit carries a supply of 225 gallons of hot water. Tanks for fresh and waste water are built under the floor of the vehicle.

Interior of mobile laboratory combines 1956 home laundry equipment and facilities for a wide range of scientific experiments on soil removal problems.



Because of power steering and air brakes the "Cruiser" is relatively easy to drive. The transmission has a range of 10 forward speeds and two reverse. The vehicle, which a company spokesman said cost approximately \$50,000, is 35 feet long, eight feet wide, 11 and one-half feet high and weighs 28,000 pounds.

On location the "Cruiser" will be used for a wide variety of tests on the performance of laundry and dishwashing products. Local water supplies and soil types will be used in experiments duplicating conditions in local homes. Up until now research scientists have been forced to attempt to reproduce water hardness and soil type by chemical or artificial means. With the "Cruiser" they can conduct experiments in any geographical area. The new mobile unit broadens the scope of three important methods for rating how well

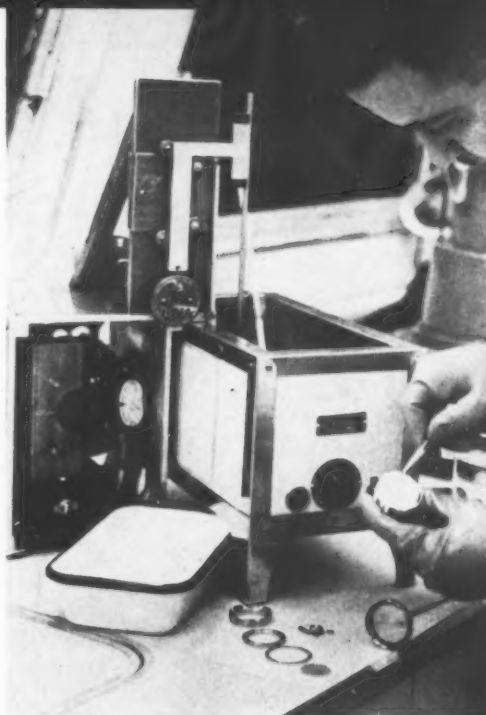
"Cruiser's" activities. In these tests, home economists and technicians launder clothes by the same method as the average housewife. But, unlike the housewife, they control the temperature of the water, the amount of detergent used and the number of rinses. Results are appraised by visual judgements of whiteness and brightness. Whiteness and brightness are also measured scientifically by color difference meters and other scientific laboratory equipment.

For practical laundry tests the "Cruiser" includes two conventional washing machines, two automatic washing machines, and two electric dryers—all 1956 models. These can be replaced to meet research needs.

For hand laundry tests and dishwashing experiments, there are stainless steel sinks. Also aboard are instruments for testing water hardness, pH and for measuring soil removal.

The "Laundry-Lab Cruiser" is not open to the public while experiments are in progress. General visiting hours are from three to four p.m. A few local housewives are invited to visit the "Cruiser" at other hours. These are women who have volunteered to lend their family laundry bundles for use in detergency studies.

A "shake-down cruise," with visits to two cities in the metropoli-



A research chemist on the "Laundry-Lab Cruiser" prepares a radioactive laundry. He puts fabric swatch treated with radioactive soil into a miniature laundry tub.

tan New York area preceded the first official showing of the vehicle for members of the press and laundering equipment manufacturers at the General Motors training center in Union, N. J.

General Motors supplied the chassis for the bus, the body of which was custom built by Medical Coaches, Inc., Oneonta, N. Y. The interior of the bus was decorated by Maurice Wood, noted yacht decorator. His problem was to work out a color scheme which avoids any feeling of claustrophobia in the somewhat confined quarters of the bus. This he succeeded in doing through the use of a predominantly aqua color scheme.

Makers Give Equipment

LEADING manufacturers of home equipment contributed washing machines and driers. These are installed in a way that permits changes in models or brands of equipment. The overhead cabinets with sliding glass doors and built-in fluorescent lighting also were presented by the manufacturer. Special size and shape wicker laundry baskets had to be found for hand-

(Turn to Page 77)

On Wheels

products work — practical laundry tests, standard soil tests and physical-chemical measurements.

Practical Laundry Tests

PRACTICAL laundry tests will form a major part of the

Lounge at opposite end of "Cruiser" where home economists traveling with bus can interview housewives to get first-hand information.



Pyramid your profits with these top-quality detergents



You can actually see your profits pile up with superior spray-dried detergents.

Uniform in activity and density, free-flowing, and chemically formulated for efficient performance, Ultra's spray-dried detergents keep your customers happy and build repeat sales.

Available in neutral, heavy-duty, and low sudsing form, these spray-dried detergents from one source can be combined for quantity price and are available to you under your private label.

Seeing is believing. Now is the time to plan big sales profits — with Ultra detergents. Mail the coupon below for further details.

SPRAY-DRIED ALKYD ARYLS

Sulframin* AB 40 Beads — Neutral 40% active, high foaming — for hand dishwashing, car washing.

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SPRAY-DRIED NON-IONICS

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*T.M. Reg. U.S. Pat. Off.

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Company _____
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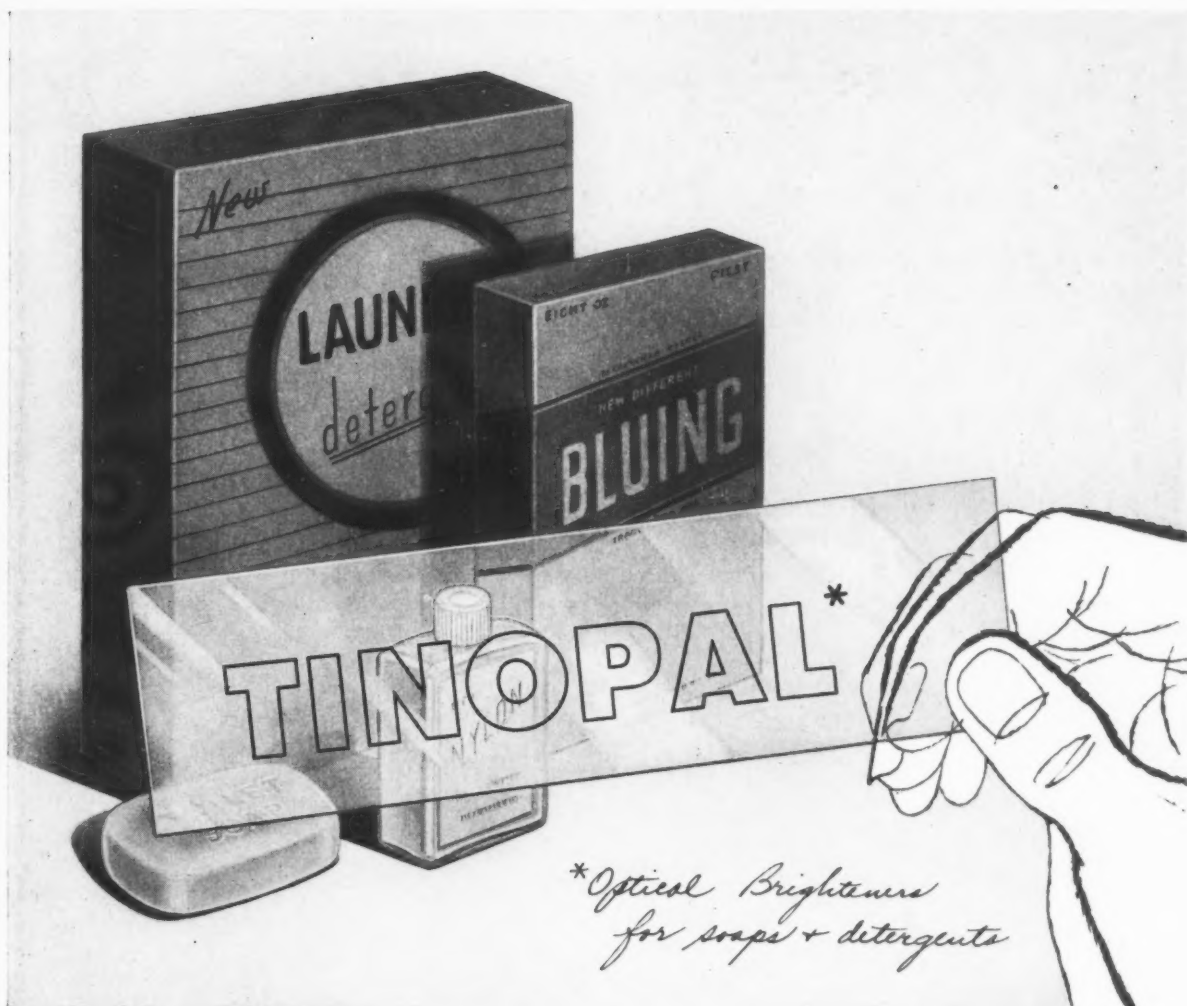
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TINOPAL RBS *All-purpose brightener for heavy duty or fine fabric detergents and soap powders. Effective on cotton, nylon and other fibres. Not destroyed by bleach in the wash.*

TINOPAL 4BM *for laundry soaps and detergents where high fluorescence value on cotton is required.*

TINOPAL GS *for whitening toilet soap.*

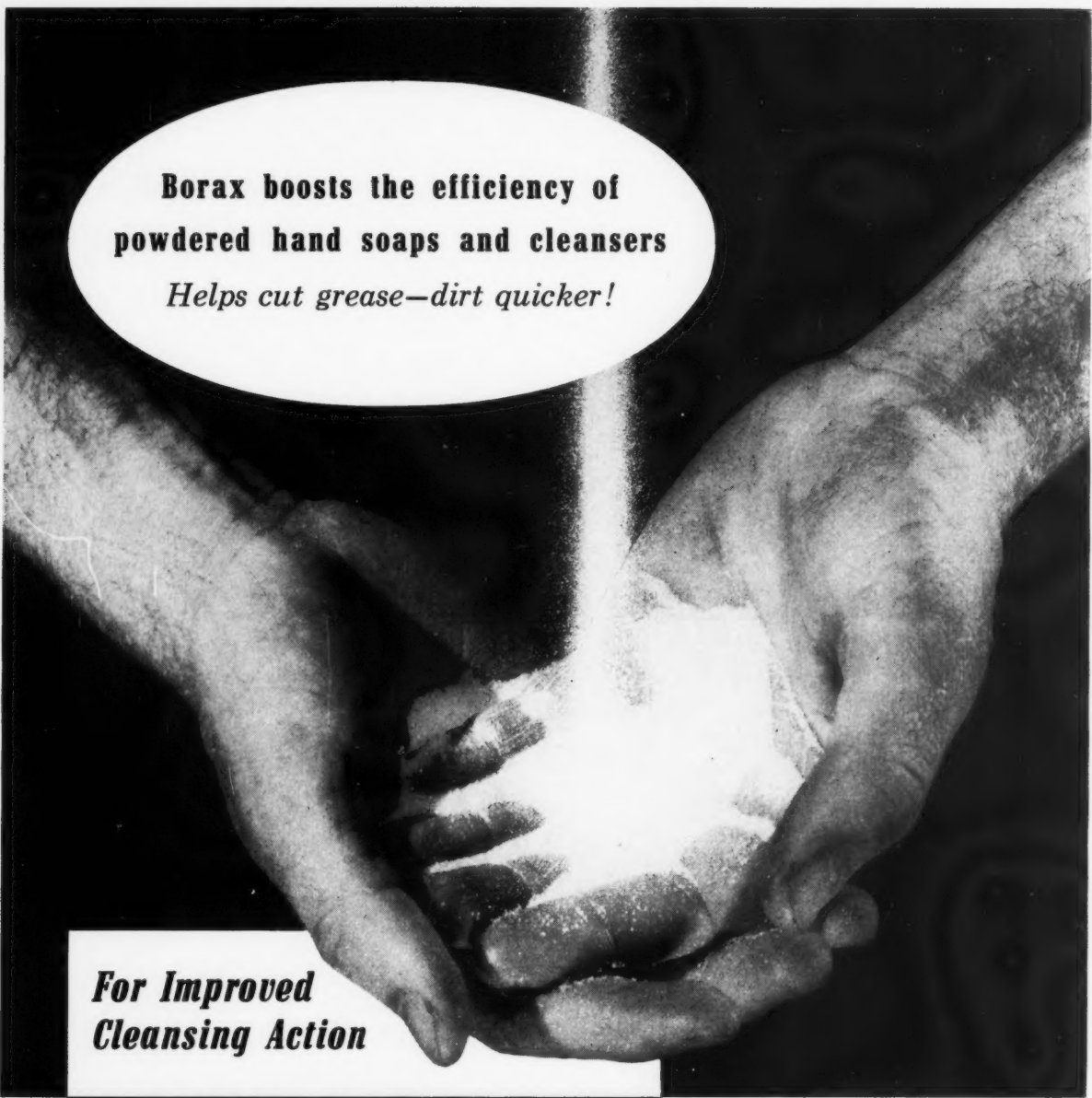
TINOPAL 2B *for laundry soaps.*

TINOPAL ABN *A cationic brightening agent for use with fabric softeners, quaternary germicides.*

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Helps cut grease—dirt quicker!

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IN A WIDE VARIETY OF GRAIN SIZES.**

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SOAP and CHEMICAL SPECIALTIES

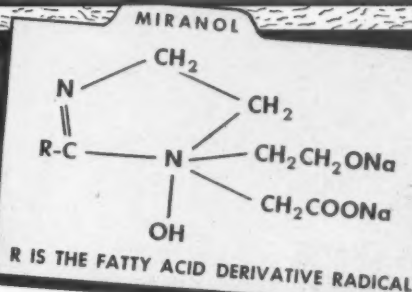


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FOR EVERY PURPOSE



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**REMOVES
GREASE
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QUICKLY
AND EASILY**

MIRANOL CM CONC. permits the formulation of liquids containing up to 20% Alkalies. This feature allows the formulation of liquid steam jenny compounds. Because MIRANOL CM CONC. plates itself out in mono-molecular layers against metal, yet remains highly water soluble, it will remove all soil by lifting it off rapidly rather than using a slow, penetrating process from the top.

When formulated with silicates MIRANOL CM CONC. will not attack aluminum regardless of alkalinity or temperature.

MIRANOL CM CONC. steam jenny compounds are, therefore, ideally suited for cleaning aluminum airplanes, truck bodies and railroad cars, etc.

IMPORTANT:

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Detergents for all industries*

*U.S. Patent No. 2,528,578

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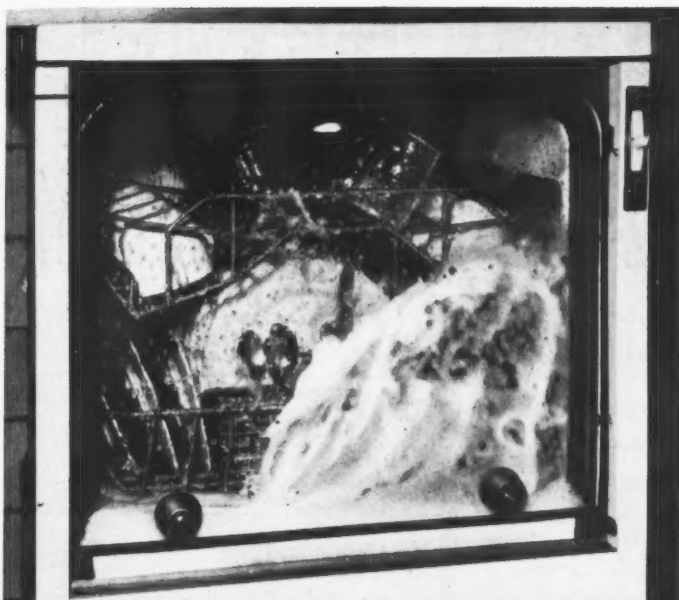
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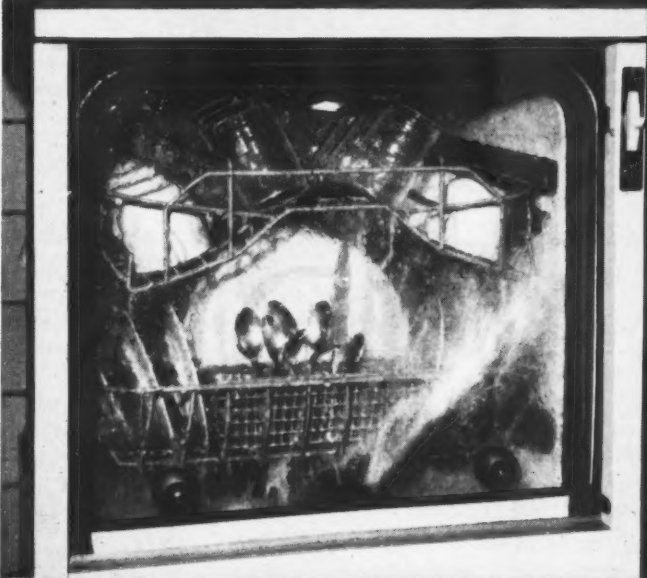
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Conventional low-foam Detergent

Notice excessive foam 3 minutes after beginning of wash cycle.



TRITON CF-10

Notice how suds are controlled (after same length of time) for better dishwasher operation.

End Excessive Foam with High-Detergency **TRITON CF-10**

Detergents containing TRITON CF-10 do not foam excessively even when violently agitated. The result is that automatic dishwashers can do their job better, and kitchenware rinses clean without streaks or spots. At the same time, TRITON CF-10 has such excellent detergent properties that it effectively removes soil from the hardest-to-clean plastic ware. Investigate TRITON CF-10 for your cleaning compounds today.

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ALPHA METHYL CINNAMIC ALDEHYDE

Typical Specifications:

PHYSICAL APPEARANCE:	Light yellow liquid.
ODOR TYPE:	Cinnamon, Cassia.
SOLUBILITY:	10 parts soluble in 12 parts of 80% Ethyl Alcohol.
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REFRACTIVE INDEX $n_{\frac{20}{D}}$:	1.6040
SPECIFIC GRAVITY $\frac{20}{20}$:	1.036
QUALITY:	Carefully produced to rigid specifications and checked in our modern control laboratories.
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News

Wrisley Advances Hehnke

John E. Hehnke has been advanced from the position of field sales manager to sales manager of



John E. Hehnke

Wrisley brand merchandise for Allen B. Wrisley Co., Chicago, it was announced late last month. Mr. Hehnke joined Wrisley in 1953 as field sales manager to direct field operations in the drug and grocery division. Previously, for five years, he was with the eastern division of W. A. Sheaffer Pen Co., Fort Madison, Ia., later becoming western sales manager, heading all divisions west of the Mississippi.

He is a graduate of the University of Indiana, where he received a masters degree in business administration. Following this he served as a Marine Corps artillery officer stationed in the South Pacific during World War II.

In his new capacity, Mr. Hehnke will have increased responsibilities for personnel and the effectiveness of the sales organization. He will be responsible for administration of the sales program and continued development of customer relations.

Royal Soap Moves

Royal Soap & Chemical Co., Los Angeles, has moved from its old address on Union Pacific Avenue to new and larger quarters at

5321-23 Sheila Street, it was announced late last month. The new telephone number is Angelus 8-4181.

More Dow Syn. Glycerine

A substantial increase in the production capacity of its synthetic glycerine plant at Velasco, Tex., was announced late last month by Dow Chemical Co., Midland, Mich. The decision to increase capacity resulted from "the satisfactory operation of the company's new plant at Velasco, both as to process and product quality, plus a steadily expanding demand for synthetic glycerine, according to Donald Williams, Dow vice-president and director of sales, who announced the planned expansion.

Dow started production of synthetic glycerine last summer in new facilities with a rated capacity announced at 36,000,000 pounds per year. The plant, which became the second synthetic unit in the world producing on a commercial scale, utilizes the company's own process with all raw materials for production being available at the Dow Texas Division. Bulk stocks of synthetic glycerine are now available from Dow distribution plants throughout the country.

New Triple Action Cleaner

General Detergents Corp., Rochester, N. Y., has developed a new compound claimed to clean, kill germs, and mothproof, all at the same time, it was announced recently by Franklyn Driveness, president.

In addition, the product is said to have fungicidal properties. Designated "K.R.C." for "Kills, Repels, Cleans" the item marks General Detergents' entry into the retail market. The firm has compounded products for industrial use for the past 20 years. Three further additions to the retail line are planned for this year.

Ultra Advances Abbott

Harold E. Abbott has been appointed assistant to the sales manager of Ultra Chemical Works, Pat



Harold E. Abbott

erson, N. J., an associate of Witco Chemical Co., New York, it was announced recently by William Spuhler, Ultra's president. In his new post Mr. Abbott handles product and sales promotion as well as special assignments. After 10 years on the sales force of Richards Chemical Co., Mr. Abbott had formed his own firm, Abbott Chemical Co.

Pharma-Craft Relocates

Pharma-Craft Corp., manufacturer of Physicians' and Surgeons' Soap and Surgeons-Lotion, recently moved its offices from New York City to Batavia, Ill., where the firm's plant is located.

Egan Joins Alcolac

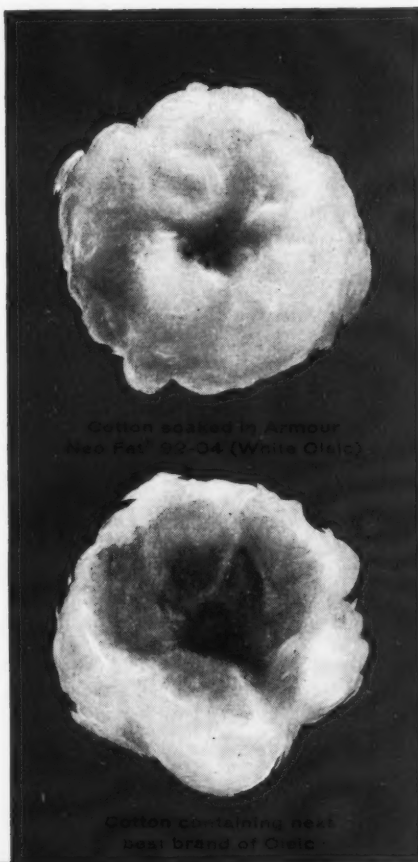
Richard R. Egan has joined American Alcolac Corp., Baltimore, Md., to head the firm's commercial research activities, it was announced recently. In his new post he is responsible for the development of new or improved surfactants and derivatives of fatty alcohols and related products. In addition he will be in charge of quality control. Prior to joining Alcolac Mr. Egan was director of research for Gerson-Stewart Co., Cleveland.

Another reason why Armour is your
one best source for fatty acids

Armour Oleics
rank highest in
oxidation stability—
here's Mackey
test proof!

MACKAY TEST PERFORMANCE								
No. of hrs. to reach 105° C.	1	2	3	4	5	6	7	8
Armour low titer white oleic								
Brand "A" white oleic								
Brand "B" white oleic								
Brand "C" white oleic								
Brand "D"								
Brand "E"								

Armour White Oleic resists oxidation in Mackey Test 2 hours and 15 minutes longer than nearest competitive white oleic.



According to laboratory tests **Armour White Oleic** has 42.8% greater oxidation stability than the next best brand of oleic. After 5 hrs., 15 min. the cotton with **Armour** low titer White Oleic shows no oxidation. The other passed the point of internal combustion and charred. In this same test, five brands of white oleics reached 105° C. in an average of 4 hr., 2 min. The cotton soaked with **Armour White Oleic** remained stable for 7 hrs., 30 min.

Whether you use white Oleics or red oils, low titer or high, **Armour Oleics** offer the greatest resistance to oxidation. In cosmetics and soaps, this greater stability means your products will store longer, look and smell fresher in use. In lubricating, scouring or finishing textiles, this also means **Armour Oleics** withstand high temperature processing. And your textiles won't develop unpleasant odors. These oleics have low pour point, low unsaponifiable and high oleic content.

Only Armour uses fractional distillation and solvent crystallization to produce a complete line of fatty acids—yet you pay no premium in price! Advantages such as these make **Armour** your one best source for fatty acids. For information and samples, simply write us listing your specifications.



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Committee D-12 Meets March 19-20

COMMITTEE D-12 on Soaps and Other Detergents of the American Society for Testing Materials will hold its 1956 annual meeting at the Park Sheraton Hotel, New York, on March 19 and 20. Programs on both days will start at 9:30 a.m. Monday morning's session will open with a joint meeting of subcommittee S-4, Specifications for Inorganic Alkaline Detergents (William Stericker, Philadelphia Quartz Co., chairman) with T-4, Analysis of Inorganic Alkaline Detergents (W. H. Koch, Mathieson Chemical Corp., Niagara Falls, N. Y., chairman). Then T-6, Analysis of Metal Cleaners (J. C. Harris, Monsanto, Dayton, O., chairman) will meet. A paper by T-6 on "Vitreous Enamel Corrosion Test," will be presented.

Monday afternoon's schedule runs as follows: S-1, Specifications for Soaps (Fred Krassner, U. S. Naval Supply Activities, Brooklyn, N. Y., chairman); T-2 (combined with T-1), joint committee with Soap Analysis Committee of the American Oil Chemists' Society (J. C. Harris, chairman); paper on "Some Aspects of Brightener Testing" by H. W. Zussman, W. Lennon, and W. Tobin, Geigy Industrial Chemicals Co., New York; T-3 and S-3, Dry Cleaning (G. P. Fulton, National Institute of Cleaning and Dyeing, Silver Spring, Md., chairman); T-7, Sampling and Interpretation of Data (C. H. Fuchs, Westinghouse Electric Corp., chairman); G-2, Nomenclature and Definitions (L. T. Howells, chairman); and G-1, Advisory Committee (J. C. Harris, chairman).

On Tuesday morning subcommittee T-5, Physical Testing, will meet (A. M. Schwartz, Milton Harris Associates, Washington, D. C., chairman) and a paper on "Radioactive Tracer Techniques in Fabric Washing Studies" is tentatively scheduled for 11:15 a.m. Luncheon will be followed by a general and business meeting. Two presentations are tentatively set for

Tuesday afternoon: "Ultrasonic Detergency Methods" and "A Demonstration of Ultrasonic Instruments."

Lever Names Butcher

The appointment of L. H. Butcher Co., Los Angeles, to represent the industrial chemical products sales department of Lever Brothers Co., New York, for the sale of refined glycerine on the Pacific Coast and in the Rocky Mountain area, was announced last month by William H. Cochrane, general manager of Lever's industrial division.

L. H. Butcher Co., a subsidiary of Udyllite Corp., maintains sales offices and warehouse in Los Angeles, San Francisco, Seattle, Portland and Salt Lake City. Glycerine to be marketed by Butcher is produced in Lever's new and modern Los Angeles plant.

Ault to P&G Board

The election of Bromwell Ault as a director of Procter & Gamble Co., Cincinnati, was announced following a meeting of the P&G board of directors, Feb. 14. Mr. Ault, vice-president, director and a member of the executive committee of Interchemical Corp., New York, replaces Frank F. Dinsmore, who retires after 22 years as a P&G director.

Mr. Ault joined Ault & Wiborg Co., Cincinnati, an Interchemical predecessor company, upon his

Bromwell Ault



graduation in 1922 from Yale, where he studied chemical engineering. Subsequently, he served as president of the Ault & Wiborg Varnish Works, and as vice-president and later president of International Printing Ink division of Interchemical.

Mr. Dinsmore, founder and senior partner of the legal firm of Dinsmore, Shohl, Sawyer and Dinsmore, has been a P&G director since 1934. His firm has been general legal counsel for P&G since 1918. An 1891 graduate of the University of Cincinnati Law School, Mr. Dinsmore has served as a member of the university's board of directors for 30 years and as chairman for the last 12 years.

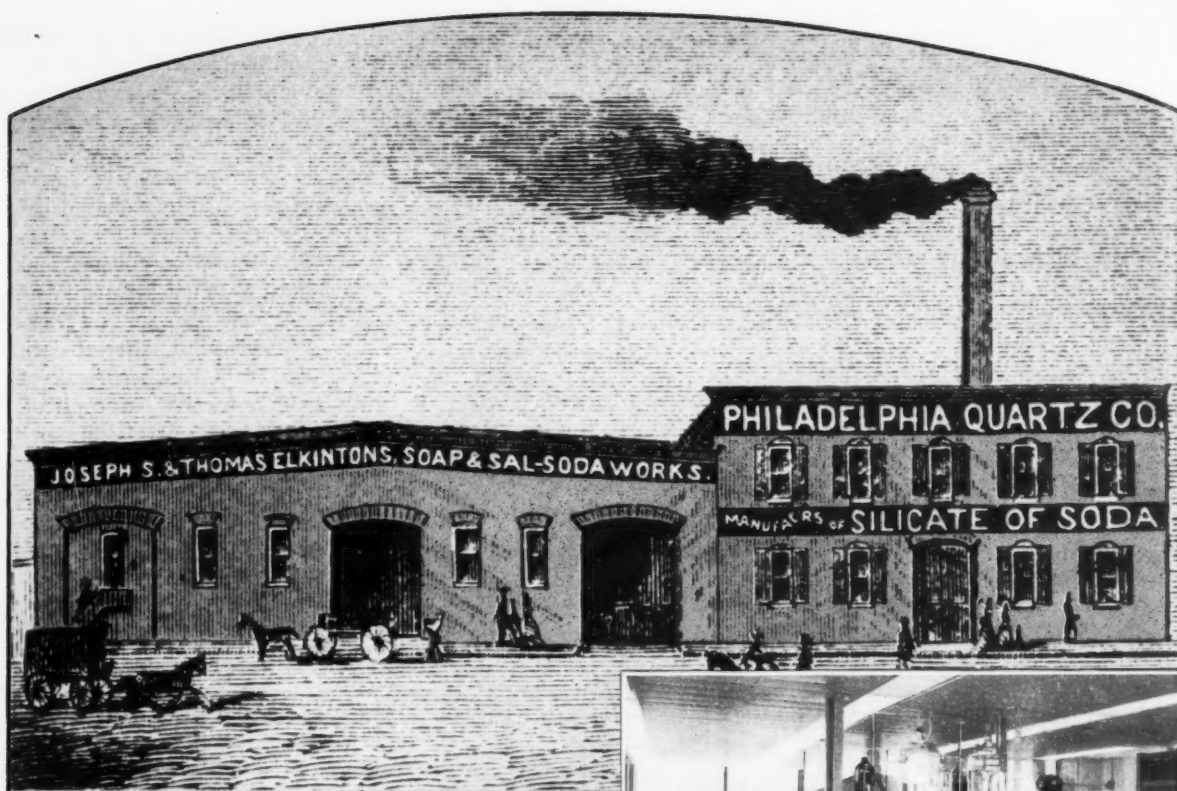
Aromatic Products Moves

Aromatic Products, Inc., has moved its offices and laboratory from 15 E. 30th St., New York, to new and larger quarters at 235 Fourth Ave., New York 3, it was announced last month. The new telephone number is Oregon 4-9114.

Davies-Young Patent Suits

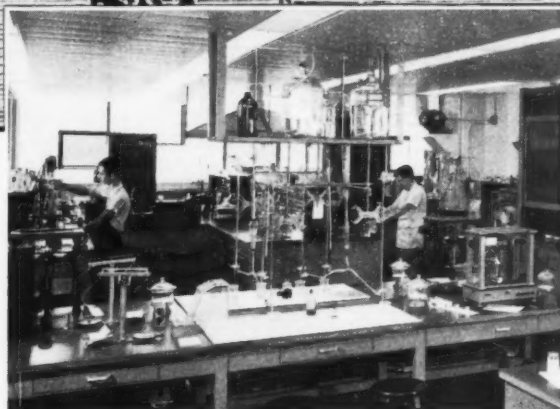
Four patent infringement suits against manufacturers have been filed recently by Davies-Young Soap Co., Dayton, claiming violation of the firm's basic patent No. 2,729,576, covering the process for rendering dry-cleaned clothes anti-static. A fifth suit has been filed against a Minneapolis drycleaner for both alleged infringement of the patent and alleged violations of Davies-Young's trademark "Lint-Free Cling-Free." The four manufacturers sued are: Adco, Inc., Sedalia, Mo.; Patek & Co., San Francisco; Nu-Pro Manufacturing Co., St. Louis; and Caled Products Co., Brentwood, Md. The drycleaning establishment is Pilgrim Dry Cleaning, Inc., Minneapolis.

The process covered by the patent makes it possible to dry clean in the same batch clothes of different character and color without adherence of lint to the clothes because of the dry cleaning process. Clothes so cleaned are claimed not to collect lint as they are worn.



PQ's first Silicate factory in Philadelphia

125 YEARS OF IMPROVING DETERGENCY



Soaps were our first products in 1831. A quarter century later, we made silicate of soda for our use, and afterwards, for other soapmakers who wanted the same improved detergency for their brands. Early in the 1900's, soap manufacture was discontinued to permit us to specialize in silicates for detergent uses as well as for other applications which were developing.

PQ research in detergency continued. In 1931 the first free-flowing sodium metasilicate was produced under our patents. Then in succession came PQ's sodium sesquisilicate, sodium metasilicate anhydrous and

concentrated orthosilicate. You know these detergents under the trademark "Metso".

When synthetic detergents were introduced, our laboratories studies showed how soluble silicates improved their efficiency. Silicates of soda contribute the very useful ability of protecting metals from corrosive attack by a large number of synthetics and polyphosphates.

Results of our investigations have been published in patents, in scientific and trade journals and in our printed bulletins.

How can this vast fund of silicate information help you?

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Frank W. Reif

Reif Succeeds Lachner

Frank W. Reif, sales manager of the home office soap sales department of Colgate-Palmolive Co., New York, has been appointed general manager of the department, succeeding Marshall S. Lachner, it was announced last month by William L. Sims, II, president of the company. Mr. Lachner, vice-president of the soap sales division of Colgate, resigned to become president of Pabst Brewing Co., Milwaukee, on Apr. 3.

Mr. Reif joined Colgate in 1919 and worked his way up from display man to salesman and assistant district manager. Eventually he became supervisor of northeastern Pennsylvania. He also served as district manager in Atlanta.

The advancement of Michael P. Frawley to the position of sales manager of the home office soap sales department, succeeding Mr. Reif, was announced at the same time by Mr. Sims. Mr. Frawley joined Colgate as a salesman in 1932 in the Springfield, Mass., district. Later he was named supervisor of the district, following which he was appointed to a similar post in the Boston district. His other assignments included home office supervisor, New York divisional supervisor, Baltimore district manager and home office merchandising manager.

Marshall S. Lachner, a graduate of the Wharton School of Finance of the University of Pennsylvania, joined Colgate in 1938 as dis-



Michael P. Frawley

play man, later serving as retail salesman, district supervisor, divisional supervisor, and district manager in Chicago and Jersey City, N. J. In 1949 he was named divisional manager of the Berkeley (California) division, a position he held until 1951 when he joined the home office organization as assistant to James A. Reilly. In August, 1953, he became manager of the soap and industrial sales departments, succeeding the late James A. Reilly. In April, 1954, he was named vice-president of the soap sales division.

D & O Flavor List

A reference book and catalog of flavors and seasonings was published late in February by Dodge & Olcott, Inc., New York. The new edition includes 68 pages carrying informative text, illustrations, formulas, tables and charts. Diecut tab sheets divide the book into 14 sections each dealing with an individual consuming industry.

Paler "Emersol" Oleic

A new lighter colored grade of single distilled oleic acid made its first appearance in the February issue of the price list published by Emery Industries Inc., Cincinnati. The new grade, "Emersol 213 low titer Elaine" resembles "Emersol 211" in all respects except color. Colors differ as follows: "Emersol 211" 3-6 red, "Emersol 213" 1-2 red (1" Lovibond).



Marshall S. Lachner

Ultra Low-Foam Snyder

A low-foaming detergent designed primarily for sale to laundrettes and suppliers of private label washing machine detergents is now being made and sold in bulk by Ultra Chemical Works, Paterson, N.J., it was announced recently by Fred H. Buck, sales manager. The product was formerly marketed by Monsanto Chemical Co., St. Louis, Mo., who dropped it from its detergent line. "Detergent MCR" is spray-dried, comes in bead form, ready to use. It contains all necessary builders and a brightening agent.

New J-M Anionic

A new anionic surface active agent was introduced recently by Johnson-March Corp., Philadelphia. Designated "Isomal 265" the new product is suggested as an emulsifier for fats and oils in the manufacture of polishes, creams and other specialties. It is also claimed to be a good emulsifier and dispersant for insecticides and agricultural sprays. Described as a concentrated sulfonated ester type liquid the product is said to exhibit very low surface tension and good wetting and re-wetting properties, a broad range of solubility in water and nearly all organic solvents, and compatibility with nonionics and other anionics. "Isomal 265" is clear, of neutral pH, approximately 65 percent active, mildly pleasant in odor, and of good temperature stability. It comes in 55-gallon steel drums.



*To achieve new and interesting
effects in perfume blending...*

GIVAUDAN FATTY ALDEHYDES

With these basic aromatic chemicals, powerful in character and versatile in application, Givaudan offers you many interesting opportunities to provide lift...bolster top notes...round out the character of basic odors...and prolong the lasting effect of perfume blends.

Givaudan's Fatty Aldehydes are produced under rigid control to meet the most exacting demands for odor quality, stability and uniformity. Stable in price and constantly available, they are among the great variety of basic aromatics regularly produced or custom-made by Givaudan for its customers.

Our staff will gladly help you select and use those best suited to your requirements.



GIVAUDAN-DELAWANNA, INC.
330 West 42nd Street, New York 36, N. Y.

SOAP and CHEMICAL SPECIALTIES

Westvaco Staff Changes

The research and development departments of Westvaco Chlor-Alkali Division of Food Machinery and Chemical Corp., New York, will be consolidated under the direction of William B. Rose, former development manager whose headquarters will be at the South Charleston, West Va. plant of the division, it was announced late in February by Franklin Farley, division president. Robert A. Bondurant, former staff assistant to the division president, becomes general service superintendent at the South Charleston plant. James G. Bronson, former manager of chlorine and alkaline sales, succeeds Mr. Bondurant as staff assistant to the president of Westvaco in New York. John M. Richard, former product manager of phosphate sales in the mineral products division becomes products manager of chlorine and alkali sales in New York.

New Fragrance Catalyst

"Fixodex", a new fragrance catalyst and odor intensifier, has been developed by Fleetwood Products Co., 509 Fifth Ave., New York. The product is an almost colorless liquid with very good solubility in alcohols, water and emulsions W/O and O/W. According to the announcement, the product is non-toxic and will store well in air-tight containers.

"Fixodex" can be used in such products as perfumes, colognes, toilet waters, hair dressings, lotions, liquid soaps, shampoos, detergents, polishes, insecticides, deodorizers and others to strengthen and accelerate the fragrance without changing the original character of the perfume oil used. Recommended uses are one ounce per gallon of the finished liquid product and one pound to 100 pounds of the finished powders or creamy products.

Soil-Retardant Cleaner

The development of a new type cleaner for rugs and upholstery that also contains a soil retardant was announced recently

by the chemical products division of Artloom Carpet Co., Philadelphia. The new combination cleaner, trade named "duo-dellay," contains "Ludox" colloidal silica, made by E. I. du Pont de Nemours & Co., Wilmington, Del. "Ludox" is also widely used as an anti-slip ingredient in floor waxes.

In addition to its cleaning and soil retardant action "duo-dellay" brightens fibres with colorless fluorescent materials. A quick-drying, non-inflammable, non-volatile material, the new cleaner is applied to rugs or upholstery, shampooed, or brushed on the fibre and dry vacuumed. The cleaner features low or controlled sudsing, which means less water is required. "duo-dellay" can be used on all fibres including wool, rayon, nylon and blends.

"duo-dellay" comes packaged in quart, half gallon, five and 55 gallon containers, and is being distributed nationally through sanitary supply distributors.

The product may be used in plastic squeeze bottles with attached nylon brush or diluted two to one in water and used straight.

New fabric cleaner, "duo-dellay" of Artloom Carpet Co., Philadelphia, contains "Ludox" soil retardant.



F. A. Jan. Output Down

Production of fatty acids in January 1956 was 37.8 million pounds, approximately one million pounds below the previous month's total of 38.8 million pounds, but 4.1 million pounds above the January 1955 figure of 33.7 million pounds.

Total disposition was 39.3 million pounds, about 1.3 million pounds above the December figure. However, the January figure included 2.2 million pounds of sales within the industry. Stocks, including work in process, increased about 2.6 million pounds to a total of 45.4 million pounds. These statistics were compiled and supplied by the Glycerine and Fatty Acid Division of the Soap Association.

Hardesty, Can., Names Two

Two new appointments to the sales staff of W. C. Hardesty of Canada, Ltd., Toronto, Ont., were announced recently by R. H. Ruebottom, sales manager. T. A. Luscombe has been named assistant sales manager and R. E. Milburn is sales representative in eastern Ontario.

New ADM Fatty Alcohols

New fatty alcohols that are non-corrosive, almost water-white liquids derived from domestic vegetable oils such as linseed and soybean oil are now available in tank-car quantities, it was announced late last month by Archer-Daniels-Midland Co., Minneapolis. Unsaturated alcohols with two or more double bonds and one hydroxyl group—"Unadol 40" and "Unadol 90" are available from the chemical products division of A-D-M's plant in Cleveland, O.

The principal component of "Unadol 40" is linoleyl alcohol which possesses two double bonds. The principal component of "Unadol 90" is linolenyl alcohol which possess three double bonds. Both products are oily liquids which resemble in appearance the oils from which they are derived, although they have less odor and are lighter in color.

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WITH REAL PLUS VALUES:

- Better Detergency
- Less Alcohol
- Less Expensive

Emulphogene BC is the first liquid nonionic detergent that effectively stabilizes the foam of alkylarylsulfonates in high foaming liquid dish-washing formulations.

BETTER DETERGENCY

Because Emulphogene BC is a 100% active nonionic detergent it does more than just stabilize foam. Because it increases the emulsification of grease and improves rinsibility, dishes are sparkling clean.

LESS ALCOHOL

Detergents formulated with Emulphogene BC require less added alcohol to obtain a clear, stable liquid product because it solubilizes alkylarylsulfonates in aqueous solution.

LESS EXPENSIVE

Emulphogene BC offers a four way saving,

1. priced lower. 2. requires less alkylarylsulfonate because Emulphogene BC, the foam stabilizer, is also a good detergent. 3. requires less added alcohol. 4. can be stored and handled in bulk in unlined steel.

Write today to Department 21 for complete information, including suggestions for use with Alipal CO-436, the companion product that's found in superior formulations.

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From Research...

...to Reality

Join Emery Industries

R. G. Kelso and Richard H. Proctor have joined the sales staff of the chemical division of Emery



R. G. Kelso



R. H. Proctor

Industries, Inc., Cincinnati, it was announced in February by R. F. Brown, chemical sales manager. After completing an orientation and training course they will be assigned to the field sales organization.

Mr. Kelso holds a B.S. degree in chemistry and an A.B. degree in English from Morris Harvey College, Charleston, W. Va. After his graduation he became associated with Carbide & Carbon's research laboratories in South Charleston, later transferring to technical sales where he remained until joining Emery.

Mr. Proctor has a B.S. degree in chemistry from Ohio State University. After graduating in 1951, he joined Koppers Co., Pittsburgh, and became a group leader in the company's Monaca, Pa., laboratories. Immediately prior to joining Emery he was with Fischer Scientific Co. in a sales capacity.

Conoco Buys Sherwood Refg.

Continental Oil Co., Houston, Tex., has bought the capital stock of Sherwood Refining Co., Englewood, N. J., it was announced

in February by L. F. McCollum, president of Continental. Sherwood produces natural sulfonates, white oils, and petrolatum at plants in Gretna, La., and Karns City, Pa. Conoco will retain the present Sherwood management Mr. McCollum said. Among other products Conoco makes raw materials for synthetic detergents. The firm operates petrochemical plants at Chicago, Baltimore, and Trainer, Pa., and owns an interest in four carbon black plants.

Cosmetic Women Meet

Leona Baumgartner, New York City Commissioner of Health, was the speaker at a luncheon meeting of the Cosmetic Career Women at the Waldorf-Astoria Hotel, New York, on February 7. Dr. Baumgartner praised the high safety standards of American cosmetics, emphasizing that education rather than punishment had been applied by government agencies and the industry itself to eliminate health hazards. She outlined the work of the recently established poison control center which concerns itself with suspected cases of accidental poisoning through ingestion of possibly harmful substances.

The Cosmetic Career Women will hold their next luncheon meeting on April 4, to which men may be invited for the only time this year. Guest speaker will be Wallace Werble.

Left to Right: Annabelle Farrell of Emery Industries; Louise LeBars of Evans Chemetics; Miriam Gibson French of McCalls; Dr. Baumgartner; Gertrude Brunn of Amole, Inc.; Carolyn Hyde of Beauty Fashion.

Blum Joins Shulton

Charles F. Blum has joined the sales staff of the fine chemicals division of Shulton, Inc., Clifton,



Charles F. Blum

N. J., it was announced recently. His territory covers New Jersey, parts of Pennsylvania and New York. Prior to his recent appointment Mr. Blum served as salesman for General Chemical Division of Allied Chemical & Dye Corp., New York.

Braude to Alcolac

George Braude has joined American Alcolac Corp., Baltimore, Md., as director of applications research, it was announced recently. Prior to joining Alcolac he was associated with Imperial Paper & Color Corp., Glens Falls, N. Y., as a senior chemist.

In his new post Dr. Braude heads projects for the development of new data on surfactants and related products, which will extend Alcolac's technical service to customers.





Why Wyandotte Caustic Soda?

MANY OF TODAY'S formulators call on Wyandotte for their supply of caustic soda for several important reasons.

First of all, Wyandotte's anhydrous grades of caustic are "main-line" products, high in quality and product uniformity . . . insuring customer satisfaction with every drum. Rigid control in the processing means that you get the finest, commercially pure caustic.

Wyandotte makes several forms of particulate anhydrous caustic soda, including standard flake, 1/4-inch flake, granular crystal, and powder. All of these are packaged in metal drums, with wide head openings for safe, easy removal of the caustic.

We give prompt, on-schedule delivery, and customer consultation. Our Technical Service Department is available to assist you with your use of Wyandotte Caustic Soda—to put our experience and technical skills to work for you.

You can order Wyandotte caustic either direct, or through our distributors. But whichever way you prefer to buy, you can get the same helpful, technical assistance with chemical problems which may be troubling you.

Contact your Wyandotte representative or distributor today, or write us direct. *Wyandotte Chemicals Corporation, Dept. SCS-4, Wyandotte, Michigan. Offices in principal cities.*

Wyandotte CHEMICALS
MICHIGAN ALKALI DIVISION



BLEACHING AGENTS • CARBOXYMETHYLCELLULOSE • CAUSTIC SODA • CALCIUM CARBONATE
CALCIUM CHLORIDE • CHLORINE • DETERGENTS (NONIONIC AND ANIONIC) • EMULSIFYING
AGENTS • SODA ASH • SODIUM BICARBONATE • SOLVENTS (CHLORINATED) • WATER
SOFTENERS • WETTING AGENTS

New Ninol Sulfonates

The availability for the first time of a broad range of alkyl aryl sulfonates for use in aqueous detergent systems, emulsifiers, lube oil additives and corrosion inhibitors was announced recently by Ninol Laboratories, Inc., Chicago.

Molecular weights increase from sodium xylene sulfonate ("Ninex 303," molecular weight 208) at the low end of the scale, to oil soluble amine sulfonates ("Ninate 430," molecular weight 480) at the high end.

According to the maker this series makes possible the selection of a sulfonate with the proper hydrophobe or hydrophile balance for any given application. In emulsification, for example, the members may be blended with each other to obtain the correct polarity. Blends of these sulfonates with nonionic types may also be made for special applications.

The water soluble "Ninex" products are used as coupling agents, foamers, dishwashing detergents and shampoos; the oil soluble "Ninates" are valuable as water-in-oil emulsifiers, corrosion inhibitors for oils or gasoline, drilling mud additives, etc.

In addition to the commercially available members of this series, Ninol also offers experimental samples of "tailor-made" sulfonates with unique cations such as zinc, nickel, or complex amines.

Further information may be obtained by contacting Ninol Laboratories at 1719 South Clinton St., Chicago 16, Ill.

Glycerine Trends

(From Page 46)

on a Spree," our progress is steady and unlikely to produce any "morning-after" hangover for producers or their customers. For five years now, younger technical men in industry have been reminded that glycerine is a modern miracle polyol, not just a historical curiosity. Today's sustained demand is evidence that our message is paying off.

Walton E. Hayman has been appointed manager, national chain store sales in the home office soap



sales department of Colgate-Palmolive Co., Jersey City, N. J., and Hugo A. Galligan becomes New York divisional manager, it was announced early in March.

For the past 15 years Mr. Hayman has been New York district manager and Mr. Galligan has served as Philadelphia district manager of the soap sales department. Mr. Hayman joined Colgate in 1921, Mr. Galligan in 1917.

W. Wallace Roff, executive vice-president and director of Whitaker, Clark & Daniels, Inc., New York, has been appointed a director of Canada Talc Industries, Ltd., Toronto, it was announced recently.

A black and white portrait of a middle-aged man with short, dark hair, wearing glasses, a white shirt, a dark tie, and a dark suit jacket. He is looking slightly to the right of the camera with a neutral expression. The background is a plain, light color.

W W W W W W W W W W W W W W W W W



**Which for you--
74% liquid caustic
...or 50%?**

With 74% solutions, there are definite freight savings — since less water must be shipped. However, the cost of such concentration cancels out part of the freight savings.

Thus, a careful study of all factors involved is needed to find the best concentration meeting a company's individual requirements.

Remember that Wyandotte makes quality grades of liquid caustic, and gives prompt service and delivery. Our salesmen are experienced people, capable of giving you help with your liquid caustic problems. Call in your Wyandotte man, today. **Wyandotte Chemicals Corp., Dept. SCS-4, Wyandotte, Michigan. Offices in principal cities.**

Wyandotte CHEMICALS



MICHIGAN ALKALI DIVISION • HEADQUARTERS FOR ALKALIES

W W W W W W W W W W W W W W W W



Your brand of clear liquid
shampoo can be

Her Favorite Brand

Use Du Pont *Duponol** EP in your formula

GIVE HER A BEAUTIFUL SHAMPOO, and that's the one she'll buy. "DUPONOL" EP won't fade or discolor. It keeps its cosmetic elegance on display.

GIVE HER A BETTER SHAMPOO, and she'll come back to buy it again. "DUPONOL" EP is laboratory-tested and controlled for quality to give you uniform formulations time after time. What's more, you save time and effort with "DUPONOL" EP. It has greater response . . . requires less thickener . . . keeps its cleansing and foaming action.

GIVE YOURSELF MORE SALES by formulating with Du Pont's detergent "DUPONOL" EP. You'll find many advantages; for example, "DUPONOL" EP is the first detergent on the market

to formulate into a wide variety of clear-liquid and liquid-cream shampoos. For more facts, send for our bulletins and formulas. E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Dept., Dyes and Chemicals Division, Wilmington 98, Delaware. We're glad to help.

DU PONT *Duponol* EP DETERGENT



*REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

To C-P Exec. Committee

The appointment of Walter G. Dunnington as a member of the executive committee of Colgate-



Walter G. Dunnington

Palmolive Co., New York, was announced Feb. 16. On the Colgate board of directors since 1953, Mr. Dunnington is a member of the New York law firm of Dunnington, Bartholow & Miller, a trustee of New York Hospital and the Hanover Bank, and a director of Great Northern Paper Co. and Standard Brands, Inc.

A native of Farmville, Va., Mr. Dunnington is a graduate of Hampden-Sydney College and the University of Virginia Law School. He has practiced law in New York since 1916.

In addition to Mr. Dunnington, the members of the company's executive committee are E. H. Little, chairman, W. I. Sims, II, S. B. Colgate, H. A. Colgate, C. S. Pearce and Stuart Sherman.

— ★ —

Fragrance Symposium

The second annual symposium on fragrance will be held by the American Society of Perfumers on March 21 at Essex House, New York. The 13 technical papers scheduled for presentation in the afternoon will be followed by a reception and buffet supper. An honorary membership in the society will be awarded to William A. Poucher. The symposium committee includes: Pierre L. Bouillette, Givaudan-Delawanna, Inc.; Andrew

B. Farago, Zanadu Manufacturing Corp.; Christian F. Wight, van Ameringen-Haebler, Inc., all of New York, and Oliver L. Marton, Shulton, Inc., Clifton, N. J. Committee chairman is Everett D. Kilmer of Lever Brothers Co., New York.

With Frazer V. Sinclair, publisher of *Beauty Fashion and Drug and Cosmetic Industry*, as moderator, the technical program includes the following presentations: "A Perfume is Born" by Pierre L. Bouillette; "What Fragrance Means to Women" by Miriam Gibson French, *McCalls Magazine*, New York; "Perfume, the Big Gamble" by Pierre Harang, Houbigant, Inc., New York; "Use of Non-expert Panel for Testing Cosmetic Fragrance" by Donald H. Powers, Warner-Lambert Pharmaceutical Co., New York; "Laboratory Pretesting of Cosmetic and Fragrance Products" by Dean Foster, United States Testing Co., Hoboken, N.J.; "A Case History in Fragrance Testing and Evaluation" by John R. Carr, Revlon Products Corp., New York; "The Role of Olfaction in Personality" by Marvin Stein, M. D., Hospital of the University of Pennsylvania, Philadelphia; "An Olfactory Aptitude Test for the Selection of a Perfume Panel" by Gustav Carsch, Toni Co., Chicago; "Perfume and Human Motivations" by Irving Gilman, Institute for Motivational Research, New York; "Measuring the Effect of Perfume upon Product Acceptability" by Eleanor K. Coen, Lever Brothers Co., New York; "Monadic Type Product Test" by Henry Brenner, Home Testing Institute, New York; and "Psychological Oddities of Perfume and Fragrance" by Jean Millon, Coty Inc., New York.

— ★ —

British Merger

Albright & Wilson, Ltd., London, bought Marchon Products Ltd., Whitehaven, Cumberland, it was announced recently. Marchon makes detergent intermediates, sulfonates, higher fatty alcohols, and

Jones Joins Victor

John Paul Jones, formerly vice-president and general manager of Western Phosphates, Inc., Salt



John Paul Jones

Lake City, U., has been appointed an assistant to the president of Victor Chemical Works, Chicago, Rothe Weigel, president, announced last month. Mr. Jones is making his headquarters in Victor's main office in Chicago, and will assist Mr. Weigel in developing a program of diversification of Victor's activities and the investigation of possible acquisitions.

James M. Gillet, also assistant to Mr. Weigel, is concentrating on industry relations, legal and tariff problems, contact with government agencies and executive office liaison with the seven communities in which Victor has manufacturing plants.

Mr. Jones, a native of Cody, Wyoming, was graduated in chemistry from Stanford University in 1931. He joined Stauffer Chemical Co., San Francisco, and rose through various departments to become assistant to the general manager in 1945. In 1952, he was assigned by Stauffer to participate in the formation of Western Phosphates, Inc., by Stauffer, American Smelting and Refining Co. and Kennecott Copper Corp.

sodium tripolyphosphates. F. Schon continues as chairman of the Marchon organization and its subsidiary, Solway Chemicals Ltd.

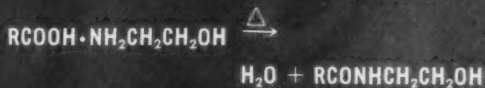


JEFFERSON

**MONO
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TRI** | **ETHANOLAMINES**

...for detergent reactions

Monoethanolamine and Diethanolamine will react with acids, acid anhydrides, acid chlorides, or esters to form ethanolamides. With acids, the first product is an ethanolamine salt which is subsequently dehydrated by heating it above 180°C.



With fatty acids, the product obtained by heating at 180°C. is the amide, while at

150°C. a mixture of amide and ester results. Side reactions can occur which lead to diethanolpiperazine and related compounds. Sulfonates of the ethanolamides of fatty acids are particularly useful in the preparation of detergents.

For more detailed information, write Jefferson Chemical Company, Inc., Box 303, Houston 1, Texas.

Essential Chemicals from Hydrocarbon Sources

Jefferson
CHEMICAL COMPANY, INC.



HOUSTON • NEW YORK • CHICAGO • CHARLOTTE • LOS ANGELES

Detergent Laboratory

(From Page 55)

ling washed clothes. They are of unusual shape—a shallow rectangular design—in order to fit into floor level cabinets.

Radioisotopes for studying the performance of soaps and detergents will also be used in the mobile laboratory.

Colgate representatives pointed out that the purpose of the "cruiser" and its visits to various cities and sections of the U. S. will be to find out more about the problems and experiences of the housewife in her washing, rather than to give her guidance in the best methods of laundering and dishwashing. Background information on family size and composition will also be obtained from housewives cooperating in practical laundry tests. Interviews by a home economist will also cover such topics as home laundry equipment, frequency of laundering, occupations of family members, and the use of supplementary products such as bleach or starch. Such data provide a framework for evaluating individual tests and build a pool of information helpful to product development, according to Colgate representatives. Experiments conducted on the "Cruiser" can be supplemented with home visits by Colgate representatives who can observe housewives laundering their clothes with their own equipment according to their own routines. The consumer can also be helpful on the "Launder-Lab Cruiser" as a well qualified judge of product performance. The housewife can be asked for her appraisal of laundry results, adding a new dimension to present evaluation techniques. While the practical laundry test is in progress home economists sometimes ask the housewife's opinion on a number of product characteristics — foam qualities, fragrance, color, texture of detergent, etc.

Comparative performances of the several different soaps and detergents made by Colgate as well as those of competitive products can

also be evaluated and the housewife asked her opinion of the results. New products can also be tested for the consumer's reaction to their performance on the "Cruiser."

The "Launder-Lab Cruiser" left early in March for its first trip to Roanoke, Va. Eventually it will visit major marketing areas throughout the entire United States. On these trips the trailer will stop at shopping areas or at parking fields at or near supermarkets. A technician and two washing specialists, traveling in a station wagon will accompany the bus, which carries only the driver.

In conducting washing tests in various areas, each family wash bundle is used to compare two products: a standard product such as Colgate's "Fab" or "Ad" synthetic detergents against an experimental product of a new formula. Products are labeled so that workers can not be influenced by brand names and reputations. Both products are studied under exactly the same conditions.

The family bundle is divided into two loads, each containing the same types of clothing and household items and each weighing approximately six pounds. Technicians measure the acidity or alkalinity of the laundry soil, rate the amount of soil, and determine how much detergent is needed for satis-

Actual washing and ironing of housewives' laundry is done aboard new Colgate "Launder Lab Cruiser" as shown below.



factory results. Both loads are laundered in identical machines and under identical conditions, except for the products used. Foam height, foam stability, and rinsing are checked during the test.

When the clothes have been dried in modern gas or electric dryers, laboratory workers compare similar pieces from each load, rating them for cleanliness and brightness. As a supplement to these visual ratings, some pieces are put into the Reflectometer, which measures how white or bright a surface is. From 30 to 300 bundles may be laundered before Colgate-Palmolive scientists have enough information on the performance of a new or improved laundry product.

De Laire Visits N. Y.

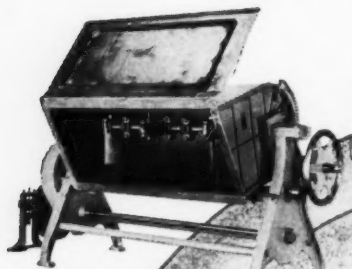
Francois de Laire, general manager of Fabriques de Produits de Chimie Organique de Laire, has just ended his annual visit to the United States, it was announced recently by Louis Bezard, president of De Laire Inc., New York. Mr. de Laire attended business and board meetings of the New York company and visited with various members of the industry.

In New Sharples Post

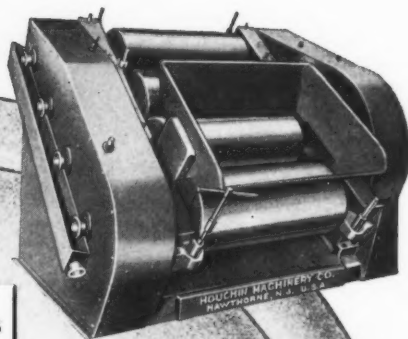
Appointment of Fred P. Demme to manager of the market development department was announced last month by Sharples Chemical Division of Pennsylvania Salt Manufacturing Co., Philadelphia. At the same time it was announced that the division's market development is now a function of the sales department under the supervision of George R. Lawson, director of sales.

In his new post Mr. Demme is responsible for market development on new products assigned to the Sharples Division. He joined Sharples in 1948, had a leave of absence in 1951 to join the National Production Authority in Washington, and returned to the company in 1952. Prior to his recent advancement he served as chemical products manager of Sharples amines and amine derivatives.

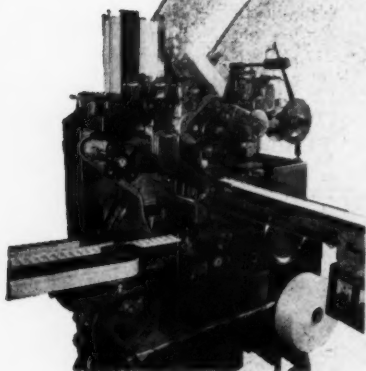
6 machines important in- SOAP MAKING



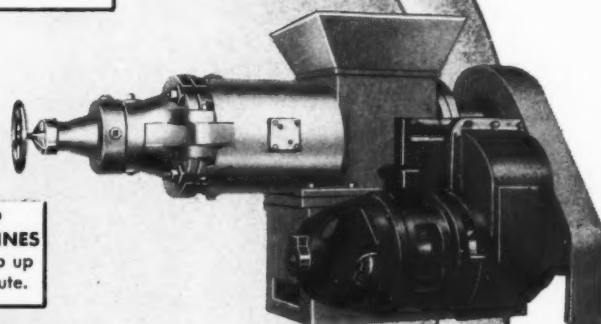
**TILTING
AMALGAMATOR**
Other types available.



**CHILLED IRON AND
GRANITE ROLL MILLS**
From laboratory size to
18" x 40" rolls

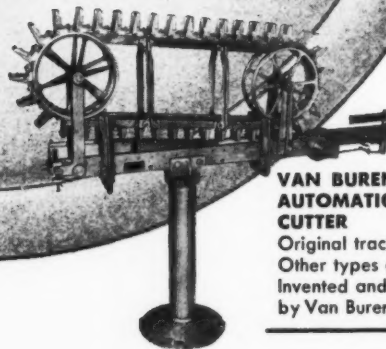
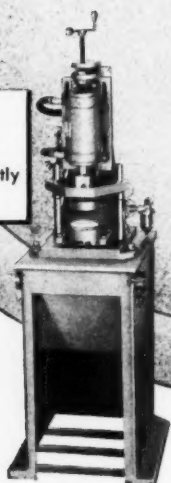


**VAN BUREN SOAP
WRAPPING MACHINES**
Various models. Wrap up
to 300 cakes per minute.



PLODDERS
2½", 4", 8", 10", 12", and
14" screws.

SAFETY AIR PRESS
Patented in U. S. and
foreign countries. Easier to
operate. Produces consistently
uniform cakes.



**VAN BUREN
AUTOMATIC SCRAPLESS
CUTTER**
Original tractor type.
Other types available.
Invented and patented
by Van Buren

Houchin soap making machines include every machine required for modern soap manufacture. Available individually or in complete production ranges.

HOUCHIN MACHINERY CO., INC.

Sixth & Van Winkle Avenues

Hawthorne, New Jersey, U.S.A.

Manufacturers of Soap Making Machinery for over a Century

In vitro test for predicting the effectiveness of

Antibacterial Agents in Soap

By C. L. Bechtold, E. A. Lawrence and E. M. Owen*

Research and Development Department
Colgate-Palmolive Co.,
Jersey City, N. J.

THE development of deodorant soap compositions requires the screening of many prospective antibacterial agents. A great number of these agents are actually ineffective when in the presence of an alkaline medium such as soap. These may be quickly rejected from further consideration by the Pellet Halo Test which measures the effectiveness of a prospective compound in soap.

The measure of this antibacterial effectiveness is made by the use of agar plates inoculated with bacteria. This technique is not new, but has come into wide use only since the advent of penicillin and other antibiotics. Actually, the Pellet Halo Test is an adaptation of the Food and Drug Administration's penicillin bioassay method. This modified test consists of measuring the antibacterial activity of a soap pellet containing the compound to be tested.

Experimental

THE soap pellets are prepared by using a simple device consisting of a brass cylinder with a $\frac{1}{2}$ -inch bore and a snug fitting stainless steel plunger having a slightly concave end. (See Figure 1.) The test soap is grated and partially dried in a low temperature oven. This grated

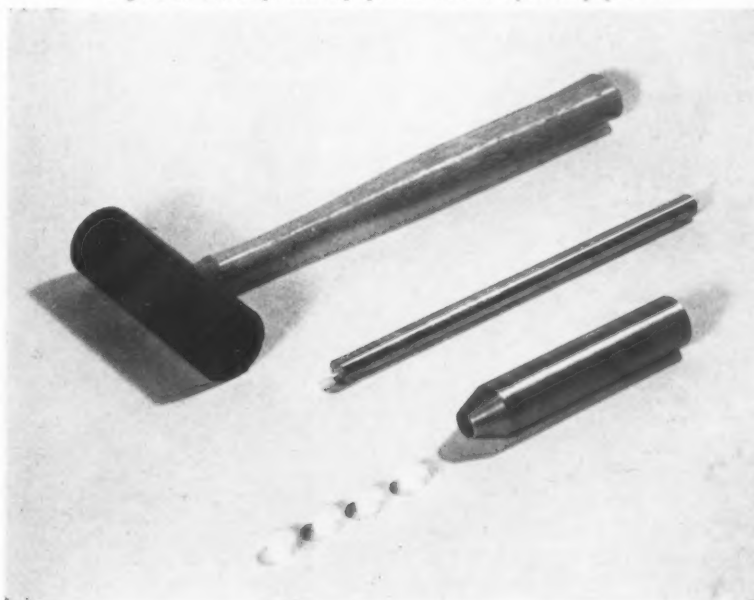
and dried soap is poured into the pellet punch cylinder to a depth of about one inch, using the plunger as a guide. It is then compressed into a pellet by striking the plunger sharply with a pellet. These pellets are placed upon the inoculated agar plates.

The agar plates are prepared by pouring 21 ml of a base agar; such as Difco B-270 Penassay Base Agar, or Baltimore Biological Laboratory No. 01-175 Penicillin Assay Base Agar; into each flat bottomed

bioassay plate. The pouring of a number of plates is simplified by the use of a Brewer Automatic Pipetting Machine or similar device. After the base agar cools and gels, 4 ml of inoculated seed agar (Difco B-263 Penassay Seed Agar or Baltimore Biological Laboratory No. 01-176 Penicillin Assay Agar) are poured into each plate. The plates are tilted and rotated gently during the pouring to assure formation of an even layer.

The inoculum for the seed

Figure 1. Pellet punch equipment with sample soap pellets.



*Paper presented during the midyear meeting of the Scientific Section of the Toilet Goods Assn., New York, Dec. 14, 1959.



MECCANICHE

CORSO SEMPIONE, 51

MODERNE

BUSTO ARSIZIO (ITALY)



"SABIZ" SPRAY DRYING PLANT

"BALLESTRA" Patent

Manufacturing Characteristics

Atomization spray nozzles.
Adaptable to three modes of operation: parallel flow, countercurrent and mixed flow.
Product discharged at room temperature: eliminates agglomeration.
Free discharge of product without use of auxiliary equipment.
Direct or indirect utilization of gases obtained by the complete combustion of fuel oil or natural gas.
One main panel for control and operation.
Automatic continuous perfuming possible.
Can spray dry heat sensitive products.

Standard Outputs

From 250 Kgs. per hour up to 3000 Kgs. per hour and more, if required.
Efficient operation of the plant results in substantial savings.

Physical Characteristics of the Dried Products

From the same slurry, merely by adjusting some valves, it is possible to get:

Dried products such as hollow beads or fine powder.

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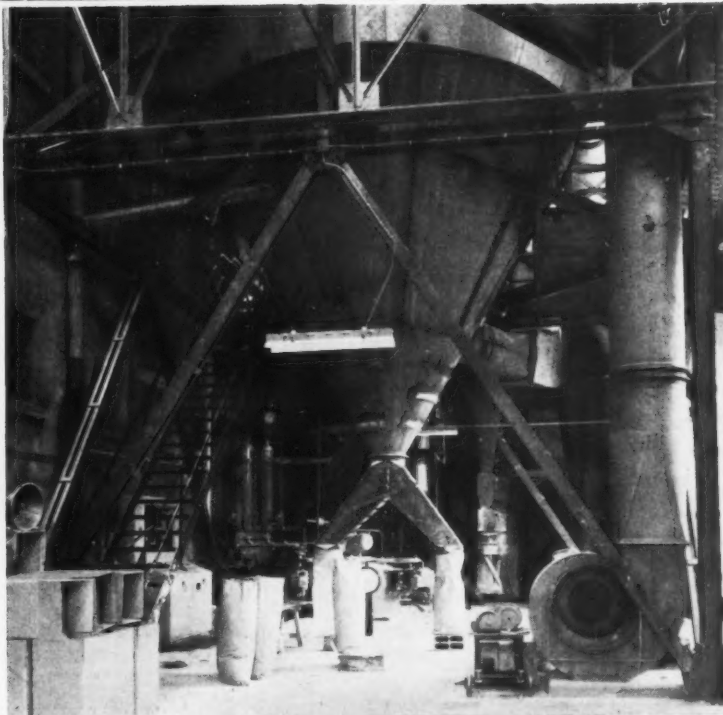
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agar consists of an 18 to 24 hour culture of *Micrococcus pyogenes* var. *aureus* in Difco B-243 Penassay Broth. This is added at a two per cent concentration to the melted seed agar which must not be above 50°C. *Micrococcus pyogenes* var. *aureus*, often called *Staphylococcus aureus*, is a realistic test organism for this work as it is one of the normal skin flora. Although it is not highly pathogenic it does cause boils and skin infections. It must be carefully maintained on slants made of seed agar in order to assure the reliability of the test. For the protection of personnel it must be handled carefully and all discarded cultures and glassware used with the cultures must be autoclaved before washing.

For the method to be reliable, care must be taken in all steps of the preparation. All media must be prepared and sterilized according to the manufacturer's directions. The plates, automatic pipetter, and anything else which comes in contact with the sterile agar must be sterilized. In pouring the plates it is advisable to pour the base layer while the agar is still very hot from its sterilization and to lift plate covers only long enough to pour in agar.

Three test pellets and a control are placed on each plate. Four duplicates are usually run and it is best to spread these duplicates among four different plates. The control consists of a Schleicher and Schuell No. 740-E disc (of very pure, highly absorbent paper for the assay of penicillin) saturated with a 1:1000 mercuric chloride solution.

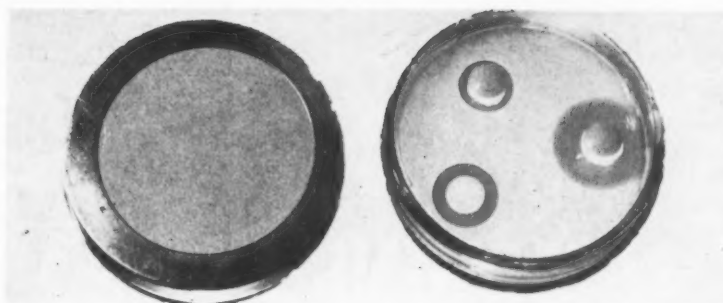


Figure 2. Left, porous cover — aluminum rim with paper insert. Right, incubated agar plate showing bacterial inhibition. Control disc at lower left.

Porous covers must be used to absorb the condensate which would otherwise drop onto the agar surface and cause irregular spreading of the bacterial growth. They may be either porcelain covers or aluminum rims with replaceable paper inserts.

The plates are incubated overnight (18 to 24 hours) at 37°C. During this period a haze will develop over the surface of the plate because of the growth of innumerable bacterial colonies. The clear zones, or "halos," of inhibited growth surrounding the discs or pellets containing an effective antibacterial agent will contrast sharply with the uniform haze or cloudiness on the remainder of the plate. (See Figure 2.) The size of the halo is a function of the activity, concentration, and diffusibility of the test compound. The halos may be measured with a ruler but the use of a Fischer Lilly Zone Reader gives

more accurate readings and is more rapid. It should be remembered that the pellets are about 13 mm in diameter, thus a result of 14.0 mm indicates only slight inhibition.

Some typical results of the Pellet Halo Test are in Table I. Also included in this table are solution test results. The solution test consists of saturating a paper disc with a one per cent solution of the test compound. The solvents used in this test produce no halos when tested by the same agar plate technique. Examination of the table reveals that dichloro-meta-xylene (DCMX) and Captan are germicidal by themselves but that they lose this effectiveness in soap. Thus, the Pellet Halo Test has served to eliminate materials which lose their effectiveness in soap.

In order to determine the effect of pellet thickness on halo size, an experiment was run in which pellets of three different sizes were prepared and tested. The soaps used contained one per cent of hexachlorophene (G-11) or Bithionol (Actamer) in a white toilet soap base. The average results of two independent runs for each soap are given in Table II. Examination of these data shows that the pellet thickness is of little significance. For ease of handling those of about 5 mm in thickness are preferable.

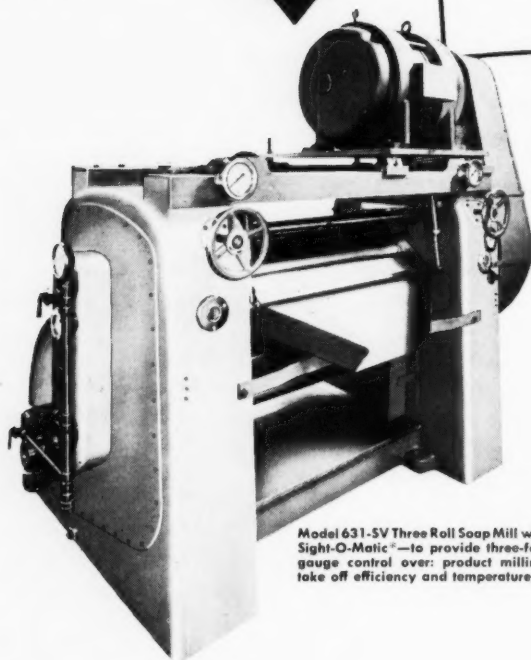
It will be noticed that the average halo sizes listed in Table II are lower than those listed in Table I. This may be explained, in this particular instance, by the fact that

Table 1. — Typical Results of Pellet Halo Tests

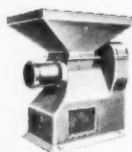
Compound	1% Active in Solution		1% Active in Soap
	Solvent	Avg. Halo	Avg. Halo
5 Chloro Salicyl 3',4' Dichloroanilide (Anobial)	al.	20 mm	30 mm
Hexachlorophene (G-11)	al.	34	24
Dichloro Meta Xylene (DCMX)	al.	22	Neg.
Zinc Dimethyldithiocarbamate (DMDTC)	aq.	29	50
2,2' Thiobis 4,6 Dichlorophenol (Bithionol)	al.	27	29
Sodium Pentachlorophenate (PCP)	aq.	52	41
Tetramethylthiuramdisulfide (TMTD)	chl.	37	36
N-Trichloromethyl — Mercapto —4— Cyclohexene — 1, 2 — Dicarboximide (Captan)	acet.	22	Neg.

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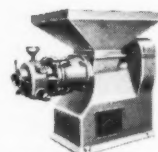
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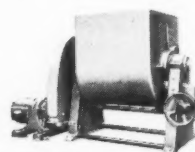
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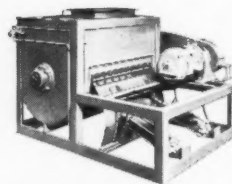
Model 310-P Preliminary Plodder



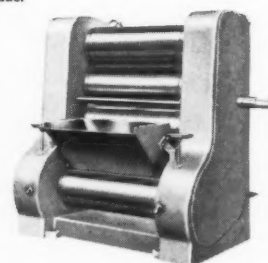
Model 310-F Finishing Plodder



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Table 2.—Effect of Pellet Thickness on Halo Size (Avg. Dia.)

	PELLET THICKNESS				HgCl ₂ Control
	1-2 mm	5-6 mm	9-10 mm		
1% G-11	21.3 mm	20.9 mm	21.2 mm		20.6 mm
in Soap	20.7	21.3	22.6		20.6
1% Bithionol	27.2	27.8	27.8		20.0
in Soap	26.7	27.4	27.3		19.6

the mercuric chloride control halos were about 2 mm below their usual level. This must be considered when comparing halo test data from different runs. In order to consider two runs comparable their standard halos have to be essentially equal.

Protein Adsorption Test

THE Pellet Halo screening technique made it possible to eliminate many antibacterial agents which are ineffective in the presence of soap. There were, however, many compounds still remaining after the preliminary screening by that test. This alone was not evidence that these materials might act as deodorants in soap. In fact, many of them were not effective as deodorants in soap at all. The only way in which definite proof could be obtained was by the use of an actual *in vivo* test. Many *in vivo* techniques have been published, but most of these are erratic and unreliable because of the natural variables encountered with the human skin. The handwashing technique of Price¹ as modified by Cade², however, appeared to give the most acceptable and reproducible measure of the skin degerming efficiency of germicidal soaps. This measure of the reduction of resident skin flora has for a long time been considered the requisite for an effective deodorant soap composition. Various papers have been published concerning this theory. The recent paper of Shelley, et al³ gives some interesting results which support this theory.

The use of the Cade handwashing test, however, would be limited to the testing of antibacterial agents which had undergone aging and compatibility tests in toilet soap formulations. This evaluation of the agent in the toilet soap again

caused many to be rejected. But, it also delayed the testing of potential deodorant compounds. What was needed, therefore, was a secondary, *in vitro*, screening test designed to give a reasonable forecast of Cade handwashing results. This test, ideally, should be applicable to research quantities of material and should not require full laboratory formulation of a toilet soap. Thus, considerable time would be saved and many compounds could be screened. Any compounds which appeared satisfactory in this test could then be subjected to evaluation in toilet soap formulation prior to the all important *in vivo* or Cade test.

It seemed natural that the probable test technique should have the characteristics of a pseudo handwashing test. Some material would be washed under simulated handwashing conditions and then examined for the presence of any adsorbed and active antibacterial agent. After consideration of a number of materials, ordinary photographic sheet film was chosen as the protein carrier. This emphasis on the word protein is arrived at from a consideration of the possible skin-retention mechanism of the anti-bacterial agents. It could be physical (trapped in the horny fibers of the skin mantle) or chemical

(weak bonds or actual linkage to protein). The latter hypothesis of protein linkage seemed feasible in the light of experimental work done on the substantivity of dyes to wool.

Experimental

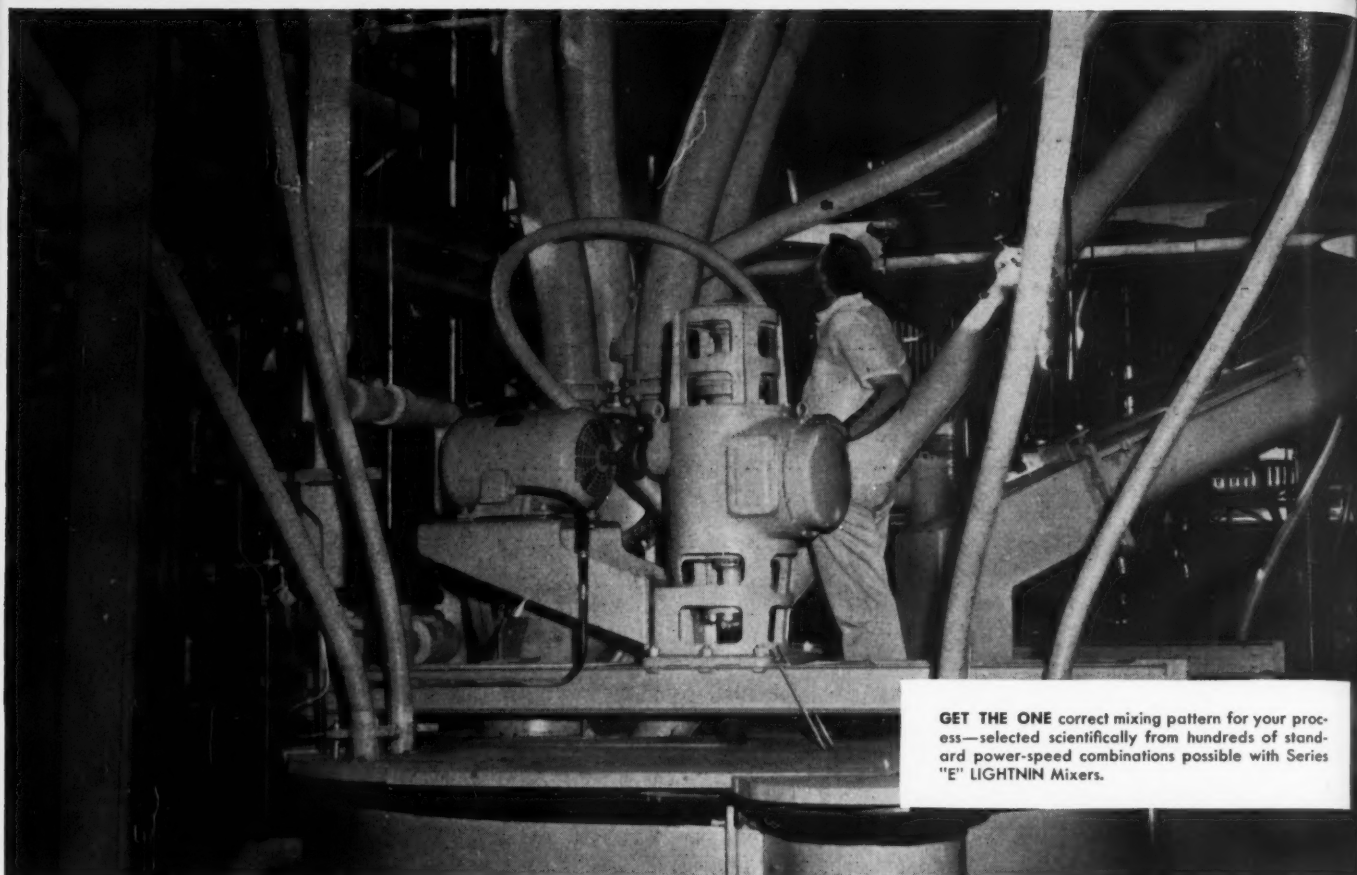
THE photographic film (Kodak Panchromatic B) for this test is prepared by clearing it first in Kodak Acid Fixer, then washing in running water, and finally drying. The purpose of the clearing in acid fixer is to remove the silver salts which will interfere with the test and to harden the film. It is then cut into discs using a standard one-half inch washer punch.

The discs (five) are prepared by soaking them in a Petri dish for fifteen minutes with a solution consisting of 0.10 per cent germicide, and 1.90 per cent soap chips in demineralized water. (Gentle heating may be used to hasten solution of the soap.) After the soaking period, the soap solution is decanted and the discs are vigorously washed to remove any adhering soap or germicide. The washing technique consists of playing a stream of demineralized water onto the discs until the Petri dish is full, then decanting. This is repeated six times in order to be certain that the treating solution has been removed. In rare instances continued washings may be necessary to remove adhering particles of insoluble germicides.

The treated discs are removed from the Petri dish and gently blotted on filter paper. A piece of filter paper is placed in a dry Petri dish and the treated discs are leaned around the inner rim of

Table 3.—Protein Adsorption Test—Development of Consistent Halo Size

Compound	1% Active Ingredient Relative to Soap				5% Active
	10 Min. Soak	1 Wash	15 Min. Soak	9 Wash	15 Min Soak
G-11	sl.	15.3 mm	15.9 mm	15.9 mm	19.3 mm
Anobial	14.3 mm	---	---	---	19.7
Bithionol	---	14.3	---	---	19.7
TMTD	0	0	14.7	sl.	20.0
		0			
		14.0			



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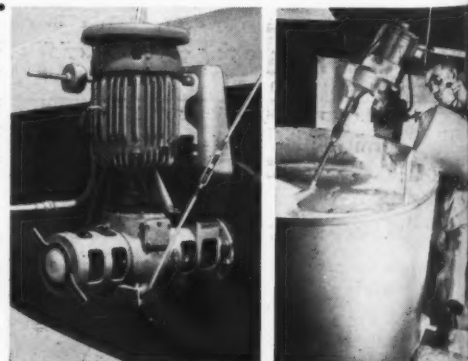
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the dish. This is done to prevent the discs from sticking. They are then dried in a low temperature oven (60°C) for approximately twenty minutes. These discs are now ready for testing of their antibacterial activity by the same agar plate technique as used for the Pellet Halo Test.

Initial test results by the earlier techniques of this procedure with one per cent of the active ingredient in soap gave only small halos for the good antibacterial agents (See Table 3). Tetramethylthiuramdisulfide (TMTD) gave no halo. Increasing the soaking period helped somewhat but still gave sporadic results for TMTD. Multiple washings were tried in order to build up the activity but this was again unsuccessful. It appeared that TMTD was not as effectively adsorbed as G-11. An increase of the active ingredient to five per cent relative to soap increased the halo size and gave consistent results for TMTD. Repeated testing has shown good reproducibility.

A summary of typical results for some antibacterial agents is given in Table 4. DCMX did not fare well under these screening tests; the results, however, are in fair agreement with the findings of Gump and Cade⁴ who obtained inferior Cade results. The small Protein Adsorption Test halo for zinc dimethyldithiocarbamate (DMDTC) indicates a lesser order of effectiveness than the other agents with halos of 19 to 20 mm. Results for Captan do not agree too well with those of Stoltz and Rogers⁵. Their results show poor handwashing results on the first week and good results on the second week of testing. Further investigation showed that Captan was unstable in the soap formulations used in the tests presented here. Overall examination of the data presented in Table 4 indicates that the Protein Adsorption Test does give the desired results; that is, it gives an indication of the expected handwashing results. At present this indication is limited to predicting no effectiveness

Table 4.—Summary of Typical Results

Compound	1% Active in Soap Pellet Halo (Avg. Dia.)	5% Active in Soap Protein Ad. Test (Avg. Dia.)	Cade Handwashing
PCP ¹	39 ¹	Neg. ¹	Neg. ¹
G-11	24	19 mm	Good
Bithionol	29	20	Good
Anobial	30	20	Good ²
DCMX	Neg.	Neg.	Inferior ³
DMDTC	50	16	—
TMTD	36	20	Good ⁴
Captan	Neg.	Neg.	— ⁵

¹ 0.45% active in soap.

² Firmenich and Cie., Soap, Perfumery, and Cosmetics, **27**, 165 (1954).

³ Gump and Cade, Soap and Sanitary Chemicals, **28**, No. 12, 52 (1953).

⁴ Vinson, Soap and Sanitary Chemicals **30**, No. 4, 44 (1954).

⁵ First Week Poor, Second Week Good, Stoltz and Rogers, Soap and Chemical Specialties, **30**, No. 6, 38 (1954).

as would be expected of an ordinary toilet soap or good performance as would be expected of G-11. There were not enough Cade handwashing results available to permit correlation with the Protein Adsorption Test halo size. It does appear, however, that this test is sensitive enough to predict no, fair, or good Cade results.

Summary

THE tests described form the basis for a simple, rapid, and efficient screening program. By using them many compounds could be screened which would otherwise be set aside until further performance data became available. The Protein Adsorption Test permits rapid abandonment of germicidally active but not substantive (adsorbable) compounds which, lacking this information, would be subjected to product formulation and evaluation. Contrarily, it also permits the rapid recognition of compounds which are deserving of formulation and evaluation.

References

1. Price, P. B., *Journal, A.M.A.*, **3**, 1993 (1938). *Journal of Infectious Diseases*, **63**, 301 (1938).
2. Cade, A. R., *Soap and Sanitary Chemicals*, **26**, 35 (July 1950).
3. Shelley, et al *A.M.A., Archives of Dermatology and Syphilology*, **68**, No. 4, 430 (Oct. 1953).

4. Gump and Cade, *Soap and Sanitary Chemicals*, **28**, No. 12, 52 (1952).

5. Stoltz and Rogers, *Soap and Chemical Specialties*, **30**, No. 6, 38 (1954).

New Sequestrene Booklet

Geigy Industrial Chemicals, a division of Geigy Chemical Corp., New York, has announced publication of a new bibliography covering the years, 1953 and 1954, for "Sequestrene," ethylenediamine tetra acetic acid. The booklet covers all references and patents relating to this material. Copies may be obtained from Geigy Industrial Chemicals, 89 Barclay St., New York 8, N. Y.

Philadelphia Quartz

(From Page 53)

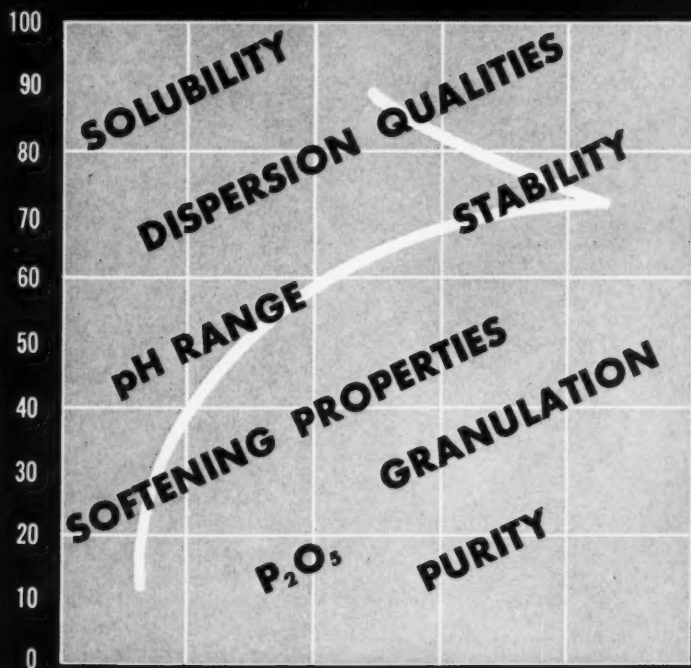
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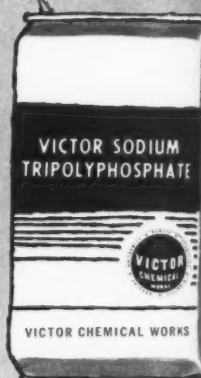
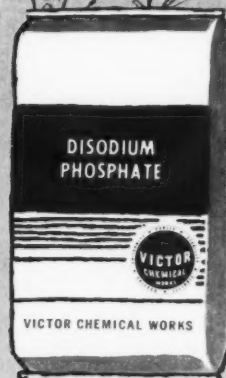
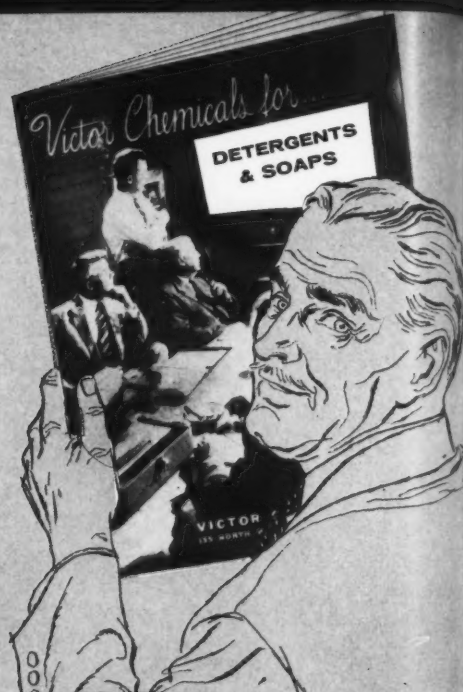
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Glass Polishing Cloth

Eye glasses, wind shields, store windows, etc., can be cleaned and polished with flannel cloth or felt which has been treated as follows: One side of the material is impregnated with a mixture of lemon juice and soft soap. This mixture, a pulpy mass of low viscosity, is dyed cornflower blue by the addition of laundry blue. The side thus treated serves for precleaning the glass. The other side of the cloth is coated with a mixture of chalk and potato flour and is used for polishing. German patent 827,414, 1952, Paul Brukit, through Chem. Abstracts, vol. 50, 1956, p. 590.

Improved Soap Process

The process of soapmaking is simplified and improved by neutralizing the alkali hydroxide content of neat soap in such manner that the neat soap will be in phase equilibrium with the nigre. The neat soap is first grained out with an aqueous solution of an electrolyte (made up entirely or in part of alkali hydroxide) and then separated from the spent lye. The alkali hydroxide content is then neutralized with such a quantity of

bi- or poly-basic acids and/or acid alkali salts thereof, that the composition of the soap mass becomes such that the neat soap will be in phase equilibrium with the nigre. Neutralization is carried out in the presence of such a small quantity of water that practically no free nigre is formed. British patent 738,400, 1955, Aktiebolaget Separator, Stockholm, Sweden.

Insect Repellent Amides

Amides said to have insect repellent properties have the following formula: $R_1 - CH_2 - CH_2 - CONR_2R_3$. R_1 is a halogen-alkyl- or alkoxy-substituted aryl radical and R_2 and R_3 are alkyl. British patent 737,951, Utzinger, G.E., Switzerland.

Microbicidal Agent

A fungicidal and bactericidal agent consists of an organic mercuric salt of hydroxyquinoline with an ionic bond linking the organic mercury radical to the oxygen atom of the hydroxyquinoline. British patent 737,247, Riedel-de Haen A.G.

Bar Form Detergent

A detergent bar, particularly suitable for use in salt, hard or brackish water is made from a mixture of commercial stearic acid, a sulfonated fatty oil, sodium or potassium silicate, caustic soda and/or potash, any alkyl benzene sulfonate (in paste form) and water, with or without sulfated fatty alcohol. Respective proportions of these ingredients are to be adjusted to yield a fatty acid content ranging from four to 19 percent. Fillers, such as kaolin or talc, coloring matter, and perfume may be added. The composition is poured directly from the pan into trays or other cooling receptacles and allowed to set before being cut or stamped into bars or tablets. Soap-like appearance and good cleansing properties are

claimed for the final product. British patent 737,824, 1955, H. F. Johnston, Natal, South Africa.

Armour Plant in England

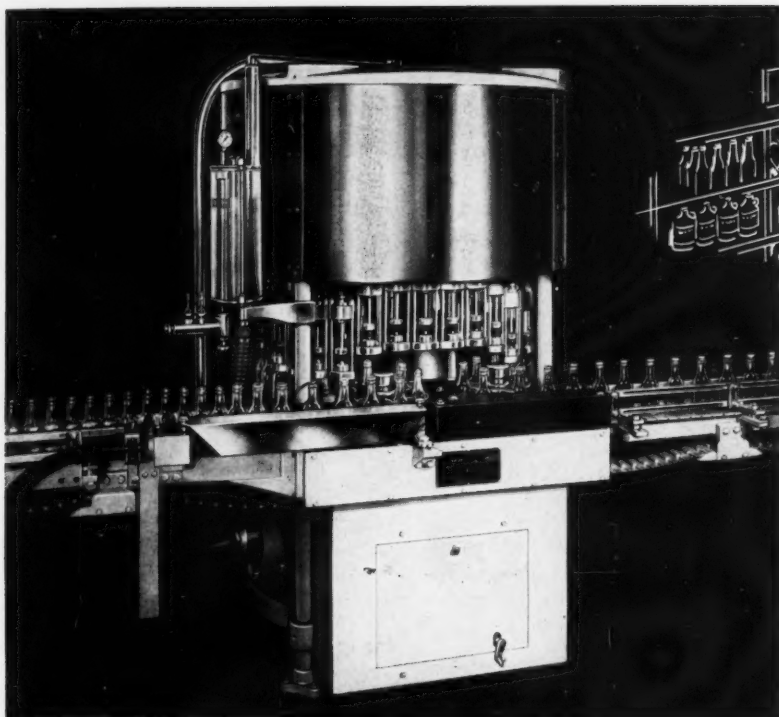
First European plant to produce the cationic and non-ionic surface active agents of Armour & Co., Co., Chicago, was opened recently near Rockdale, Lancs., England. Laid out on the straight line principle, the plant produces "Ar-meens," "Armacs," "Duomeens," and "Arquads." Only one operator is required for the fatty acid fractionation still and for the nitrile units, owing to application of automatic control. The unit includes a research and control laboratory and a workshop.

P & G Food Products Div.

Procter & Gamble Co., Cincinnati, recently announced the formation of a Food Products Division, with Mark Upson, formerly P&G's general sales manager, as division manager. The unit will be responsible for the manufacture, advertising and sale of P&G's consumer brands and bulk products in the edible field.

Executives in the new division, in addition to Mark Upson, are: C. M. Fullgraf, manager of manufacturing and product development; R. B. Shetterly, advertising manager; J. S. Janney, manager of case food sales; M. K. Rettig, manager of bulk shortening sales; M. W. Strickland, manager of tank oil sales; and R. S. Runnels, chief accountant.

A new sales organization to handle sales of P&G's household shortenings and other food products has been formed, and the company's present sales organizations for bulk shortening and edible oils have become part of the new division. However, it was pointed out that W. T. Young Foods, Inc., will continue to function as an independent subsidiary without changes in personnel or operations, under the general direction of the manager of the newly created Food Products Division.

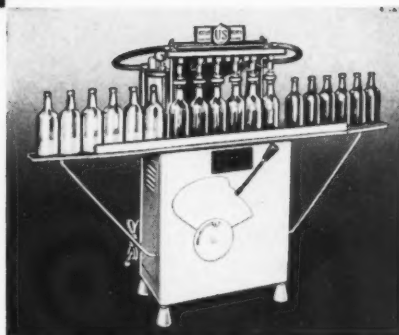


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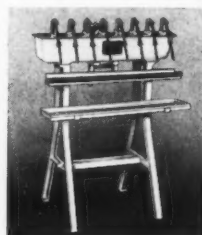
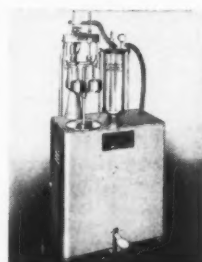
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U. S. Model B-49 Straightline Vacuum Filler; the most automatic one-man filler. Operates with or without discharge conveyor. For all types of liquids. Write for Model B-49 Bulletin.

U. S. Model B-2 Semi-automatic Vacuum Filler. Provides efficient continuous production, filling two containers at a time. For all containers up to 4 1/2" dia. All liquids. Portable. Write for Model B-2 Bulletin



U. S. Siphon Filler. Efficient for all liquids including foamy products or products that do not permit agitation. Stainless steel tubes; acid resistant glass lined tank. Improved model. Adjustable. Write for the Siphon Bulletin.

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NEW Patents

The data listed below is only a brief review of recent patents pertinent to the readers and subscribers of this publication. Complete copies may be obtained by writing to the publisher of this magazine, Mac Nair-Dorland Co., 254 W. 31st Street, New York 1, N. Y., and remitting 50c for each copy desired. For orders received from outside of the United States the cost will be \$1.00 per copy.

No. 2,726,937. Apparatus for Continuous Production of Soap, patented by Felix Lucien Lachamp, Franconville, France, assignor to Union Francaise Commerciale et Industrielle, Casablanca, Morocco. The patent describes an apparatus for the continuous production of purified soap which features an emulsifying device comprising an outer cylindrical housing, a rotatable shaft coaxial with said housing, helical grooves extending along the outer cylindrical surface of said shaft, bearing surfaces for said rotatable shaft adjacent to both upper and lower ends of said housing respectively, means to rotate said shaft and cause a screw-like displacement of said helical grooves with respect to the bottom of said housing, means to shift said shaft axially in said housing, a frusto-conical plate member coaxial with said shaft secured to the lower end of said shaft, said plate member having an upper surface of lesser area than the under surface thereof, a frusto-conical bottom portion in said housing having a conical surface which is substantially parallel to the outer surface of said frusto conical plate member and coaxial therewith, a first perforated cylinder secured to said frusto-conical plate member along the periphery of the upper surface thereof to extend upwardly therefrom in close relationship to the inner diameter of said housing, a second perforated cylinder coaxial with said first cylinder attached to the upper wall of said housing and spaced within said first cylinder at a close distance therefrom and means to feed a fat-like material and an aqueous material through the wall of said housing and between the inner surface of said housing and the outer surface of said first perforated cylinder.

No. 2,727,007. Detergent-Germicide Composition, patented by Lawrence L. Little and Gilmore Chen, Morris Plains, N.J., assignor to E. F. Drew & Co., Inc., New York. A detergent-germicide composition is covered consisting of a quaternary ammonium germicide, an alkali metal carbonate and an alkali metal poly-

phosphate taken from the class consisting of alkali metal triphosphates and tetraphosphates. The ratio of carbonate to polyphosphate is 1 to 2-7, the amount of said germicide is 2 to 4% by weight of said composition.

No. 2,726,961. Polishing Wax Emulsion and Method of Producing It, patented by Ralph K. Iler, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del. Described is a wax emulsion polishing composition containing from 10 to 50% of SiO_2 , based upon the solid content of the wax emulsion, of an aqueous silica sol having a silica: alkali metal oxide mole ratio of from 130:1 to 500:1, a relative viscosity of from 1.15 to 1.55 as measured at 10% SiO_2 and pH 10, and a specific conductance, as measured at 10% SiO_2 and 28°C., of less than
$$\left(\frac{10,000}{R} + 30 \right) \times 10^{-5} \text{ mho/cm.}$$

where R is the silica: alkali metal oxide mole ratio, and containing amorphous silica in the form of dense, nonagglomerated, spherical particles having an average particle diameter of 10 to 130 millimicrons.

No. 2,726,935. Manufacture of Chloramine, patented by Frank V. Canfield, Zachary, and Louis B. Reynolds, Baton Rouge, La., assignors to Ethyl Corporation, New York, N. Y. The patent teaches the process of manufacture of an anhydrous chloramine gaseous product comprising feeding chlorine gas and ammonia gas, in the proportions of 0.02 mole to 0.10 mole of chlorine per mole of ammonia, to an extended reaction zone having a hydraulic radius of not less than one-fourth inch, and suspending finely divided ammonium chloride solids in said gases which reacting at a pressure of at least 150 pounds per square inch and at a temperature of not over about 350°F., the ammonium chloride solids being suspended in the proportions of from 100 to 2000 parts by weight to one part by weight of the total free chlorine in the reaction zone.

No. 2,726,149. Defoliation of Plants, patented by Lloyd Q. Boyd, Highland, Ind., assignor to Standard Oil Company, Chicago, Ill. A method of defoliating crop bearing plants is disclosed which comprises applying to the leaves of a plant having a crop at least nearing maturity, an amount of a water-soluble inorganic iodine salt effective to cause defoliation of said plant.

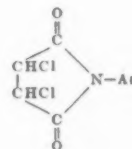
No. 2,727,857. Preparation of Fatty Peroxides, patented by Roscoe Owen Carter, Jr., Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati. This patent teaches a process for preparing, from unsaturated fatty matter, peroxides of unsaturated fatty matter of high peroxidic oxygen content. The process

comprises intimately contacting refined unsaturated fatty matter in liquid condition and at a temperature not over 100°C. with oxygen and chlorophyll which are added throughout the reaction in the presence of visible light that is essentially free of ultraviolet light and contains a major proportion of light in the 600-660 m μ wave band, the liquid mixture being essentially free of copper and other de-peroxidation catalysts, the peroxidation reaction being continued until the unsaturated fatty matter contains at least 1000 millimoles of peroxidic oxygen per kilogram.

No. 2,728,729. Wall Paper Cleaner, patented by W. Kedzie Teller, Riverside, Ill., assignor to Alphonse J. Saxer. A cleaning composition is described for use on walls, wall coverings, and wall coatings and wherein the cleaner does not crumble, does not smudge, stain or adhere to the surface being cleaned, and has a long storage and use life during which it maintains its original plasticity, consisting of: 380 to 470 parts by weight of water, 270 to 300 parts by weight of wheat flour, 100 to 130 parts by weight of bentonite, 6.5 to 8.0 parts by weight of alum, 4.0 to 6.0 parts by weight of urea, 6.0 to 10.0 parts by weight of kerosene, 7.0 to 11.0 parts by weight of wax and 180 to 190 parts by weight of a material of the group consisting of sodium and potassium chloride.

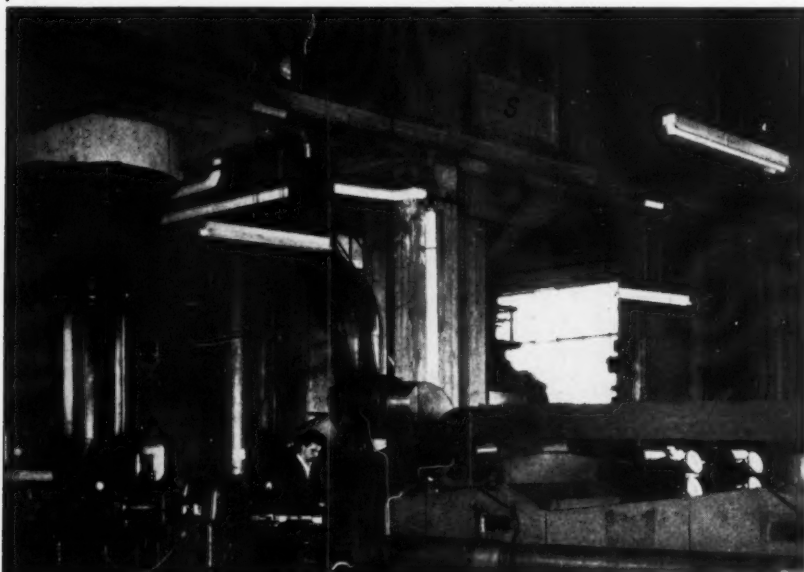
No. 2,728,683. Laundry Starch Composition, patented by George L. Hervet, Downers Grove, Ill., assignor to Universal Oil Products Company, Chicago, Ill. The patent covers a composition for use in the laundering of fabrics comprising a fabric starching component in finely divided solid form and having uniformly distributed therein from about 0.01 to about 10% by weight of a water-dispersible anti-soil fixation agent comprising a substituted mono-nuclear phenol containing from 1 to 2 hydroxyl groups per molecule and in which the substitution consists of at least 1 but not more than 3 alkyl groups of not more than about 5 carbon atoms per group.

No. 2,726,981. Method of Combatting Fungus Organisms and N-Aryl Chlorosuccinimide Compositions Therefor, patented by Calvin N. Wolf and Rex D. Closson, Detroit, and Waldo B. Ligett, Pontiac, Mich., assignors to Ethyl Corporation, New York, N. Y. Disclosed is a new composition of matter having the structure



wherein Ar is an aryl group.

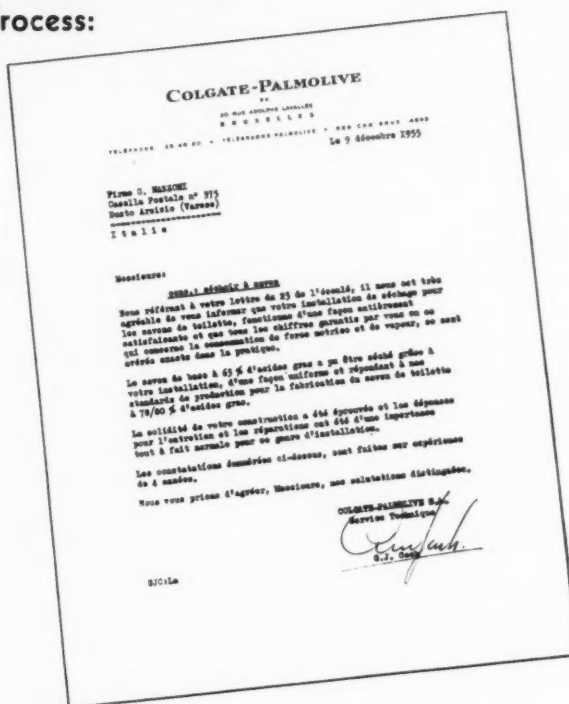
Continuous Soap Plants



Photograph of a MAZZONI soap plant automatically producing one ton of household or toilet soap per hour. "S" is the silo for the storage of the dried soap rods. From the silo the rods are then passed through a line of finishing machinery for milled toilet soap cakes.

Advantages of the MAZZONI Process:

- ★ Small plant space; only one operator needed.
- ★ Saves 70% in steam, 50% labor, 40% electric power.
- ★ Operates at low temperature, avoiding deterioration of soap.
- ★ Vacuum process gives better toilet soaps. Deodorizing effect reduces perfume needs. Smoother, grit-free cakes which wash off evenly. Improved lathering.
- ★ Transparent toilet and laundry soaps without addition of glycerine, alcohol, sugar, and any other additives.
- ★ Complete installations (mixers, mills, plodders, cutters and stampers) for milled toilet soap and soap flakes.
- ★ Since 1945 more than 115 plants have been installed in different countries of the world.
- ★ Laundry soaps, pure from 62% fatty acids upwards or filled from 35 to 62% fatty acids, ready for pressing and immediate packing without slabbing, cutting, etc. Automatic perfuming device included.
- ★ Suitable for adaptation in any soap factory, — a compact, low-cost vacuum process, continuous from neat soap to pressing and wrapping.
- ★ Soaps showing a beta phase content from a minimum of 75 percent to a maximum of 100 percent. Analyzed in the laboratories of Procter & Gamble Company, Cincinnati. Analysis is given with their permission.
- ★ Plants for outputs of half-ton, one ton, two tons, three tons or higher per hour.



For further detailed information, write to

G. MAZZONI, S. p. A.
Busto Arsizio, (Varese) Italy

Cable address: Cosmazzoni, Busto Arsizio

By E. G. Thomssen, Ph.D.

THE importance of substances that are near at hand every moment of our lives is sometimes overlooked. Authors of papers appearing in this and most other publications devote much space to new finished products for the consumer, chemical raw materials, as well as processing machinery and equipment made from metal. Glass, one of the most versatile of packaging and engineering materials, gets but little publicity when one considers its importance for so many different uses.

Made from one of the cheapest and most abundant raw materials, glass is about the least costly synthetic finished product known to man. Its applications in the arts and industry are versatile and comprehensive. The technological advances made in the glass industry are extremely important to the whole field of chemical specialties, as well as soaps and synthetic detergents. Recent research developments in the glass field have resulted in new and valuable applications for glass products.

Within the memory of most of us, glass was considered a valuable material for making containers, household wares and both plate and ordinary window glass. Special types of glass, made by the addition of metals, colors or other ingredient to impart certain properties needed for such uses as lenses or heat-resistant ware, have been produced in limited quantities.

In recent years the narrow concept of the use of glass as a raw material has been altered. Contemporary research has discovered that glass is really about as versatile a material as we possess for use in and around an industrial plant. Glass is now made in various forms so as to be heavier than iron, lighter than cork, finer than silk, resistant to sudden temperature changes and

stronger than steel. Other properties include toughness and corrosion resistance. Glass may also be employed as a dielectric or electric conductor and as a control for light, heat or other rays for specific purposes. In the engineering field the range of glass applications is wide.

To those in the packaging and production phases of the chemical industry, glass is most often of interest for containers, laboratory and processing equipment, or lighting purposes.

About one-third of the glass produced in the United States finds its way into containers, such as bottles and jars. The glass container field, incidentally, is a highly competitive one. It is a tribute to the glass industry that it has constantly improved its production machinery and processing techniques and thus kept the cost of its products relatively stable.

During World War II, the diversion of steel plate to munitions would have caused a decided shortage in containers for food, beverages, chemicals and cosmetics if glass manufacturers had not stepped up their production capacity and efficiency to prevent this. Much progress has been made in producing glass which resists the action of the myriad items which are packaged in

glass. Increasing strength, resistance to heat or extreme temperature changes, and virtual elimination of product deterioration by light rays have been accomplished by glass bottle makers in recent years. Not long ago, one of the glass companies introduced a bottle that is 20 percent lighter and yet is claimed to be just as strong as the conventional type. In addition, the new container can be produced twice as fast as its predecessor. The process for making this particular type bottle will be extended to other types of glass containers as well. Not only is the handicap of weight reduced, but substantial savings in cost also result.

With a rapid and sizable increase in the sale of all types of aerosol or pressure packaged products, improved and more suitable, though less costly, glass containers have been devised. Glass makers, furthermore, have attempted with considerable success to design standardized, cheaper and better closures. This has resulted in great savings in the use of glass packages.

In spite of much competition from paper, plastic and metal containers, it is reported that the consumption of glass for containers is increasing at the rate of five percent each year. An all-time sales record for glass containers was established in 1955.

Laboratory processing men are very dependent upon glass. Numerous types of glassware are necessary for the performance of laboratory work. Glass vessels for weighing and transferring materials are widely used in processing procedures. Glass lined tanks and kettles are finding greatly increased use in the processing and manufacture of many chemical specialties. Nor should the use of glass in the building of larger equipment for gauges, sight glasses and similar applications be overlooked.

The most recent spectacular growth in the application of glass is in the use of fiber glass. The sales volume of this material has just about tripled in five years and con-

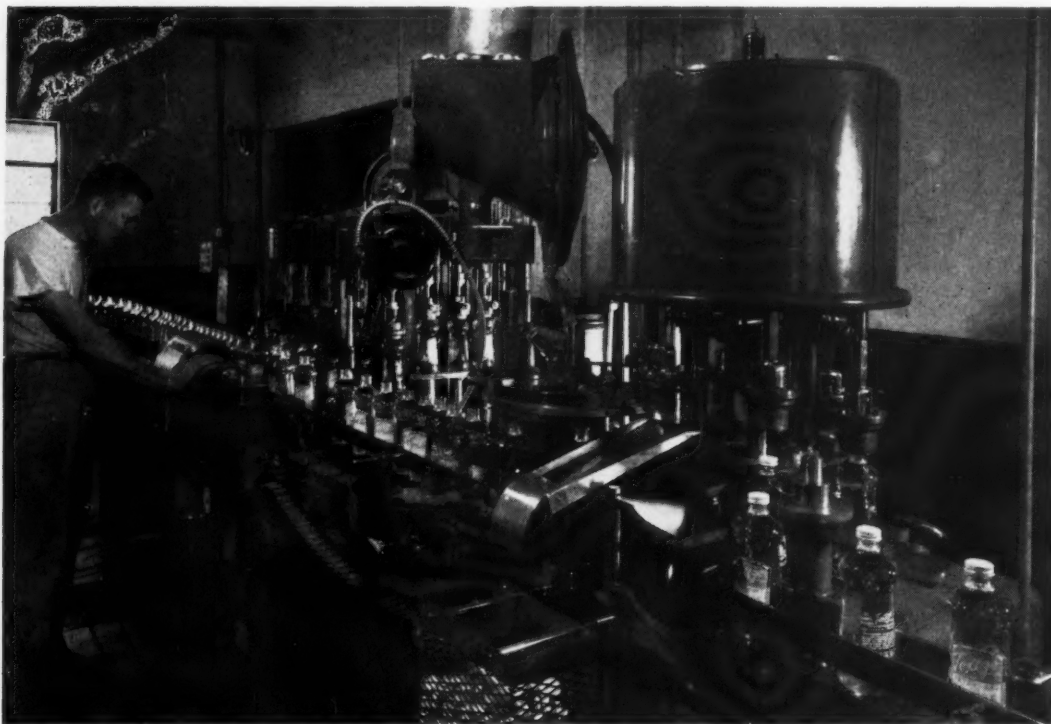
Dr. E. G. Thomssen



CaPeM

Screw CAPPERS

Speed Production for Texize Chemicals, Inc.



This Model D-6-F Rotary CaPeM increased production at Texize Chemicals, Inc., Greenville, S. C. to such an extent that they recently ordered a duplicate. This completely automatic line is operated continuously at production rates in excess of 200 bottles per minute.

CaPeM Screw Cappers apply all types of metal and plastic screw caps to jars, bottles, cans and jugs ranging in size from 1 oz. to gallons. Speeds range from 40 to 300 containers per minute. For complete information, write Sales Manager, Consolidated Packaging Machinery Corporation, Buffalo 13, New York.



Robert M. Greer, Supervisor of Bottling. Mr. Greer supports the judgment of other representative companies by selecting the high speed, six-head, rotary CaPeM, Model D-6-F, as a logical answer to the growing demand for Texize products.

CONSOLIDATED PACKAGING MACHINERY CORP.

1400 West Ave., Buffalo 13, N. Y.

tinues to grow rapidly. Much of it is used as glass wool for insulation against heat and sound. Other applications are for spinning into fabrics for filter cloths, pipe wrappings, screens and sieves, electric insulation and reinforcement for plastics.

The development of a cheap, glass-reinforced plastic pipe is an application which holds great future promise for chemical production and chemical processing.

Foam glass is being consumed in rapidly increasing amounts as an insulating material for many plants and much equipment. One of the features of this type of insulation is that it remains dry even in an atmosphere of high humidity. It can be used to great advantage on roofs, ceilings, walls and floors, in cold storage rooms, and on piping, tanks and similar equipment. The use of foam glass for insulation overcomes the problem of condensation.

In addition to the use of glass for items of direct interest to our specific fields, there are many new developments worth mentioning. These include improved electric light bulbs, TV tubes, new type automobile windshields, glass blocks, glass flooring, glass paints, electrical and electronic products, all of which are of importance and interest to industry in general.

The glass producing and fabricating industry is noted for its stability. With increased research activities, its growing importance to the chemical specialties field will be watched with interest and enthusiasm.

Drum Handling Devices

SEVERAL labor-saving, drum-handling devices are now available from Palmer-Shile Co., Detroit 27, Mich. Included is a combination truck and drain rack, a drum and barrel tilt, and a drum and barrel sling.

The rack loads automatically and serves as drain rack. The tilt provides for accurate dumping and pouring. The sling is used for load-

ing and unloading and all general purpose drum handling. The sling may be used for picking up drums, barrels or kegs that are lying down or setting on end. The unit may also be used for draining purposes.

Conveyors

TWO conveyors that may be put to good use in the chemical specialties plant are the "Handibelt" and "Inclinebelt" units of Standard Conveyor Co., St. Paul, Minn. Avail-

able in three sizes, the "Handibelt" conveyor continuously handles packages up to 135 pounds in weight. It may be moved by one man. Readily adjustable, it fits into freight cars, crowded aisles or elevators. For longer distance conveying, several "Handibelts" may be lined up. The unit is operated by an electric motor, has belt widths of 14 and 20 inches, and moves packages at incline or decline angles.

The "Inclinebelt" is used



**HERE'S A MIXER THAT
GUARANTEES A
CONSTANT UNIFORM MIX!**

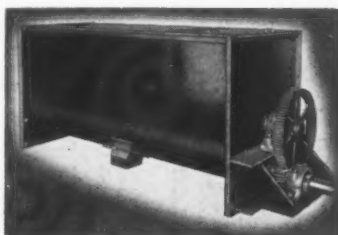
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The Marion Mixer is engineered for precision mixing and turns out TOP QUALITY mixed products for chemical manufacturers everywhere. The Marion Mixer is recommended for mixing the Lightest or Heaviest Materials. Its simple, efficient design is rugged enough to handle any volume of mixing large or small . . . and at the same time, it constantly safe-guards your formula mixes from loss of uniformity. Laboratory tests have proven that even trace materials can be blended into the most complicated industrial chemical formulas, and pass individual analysis tests for the most even batch distribution possible.

When replacing worn-out Mixers — Expanding your Mixing Operations—Adding new mixed products to your line, it will pay you to investigate the distinct advantages of the Marion Mixer. There is a Marion Mixer for any Chemical Mixing Operation. See the Marion Mixer at the NSSA Convention! Booth Nos. 93 and 94.

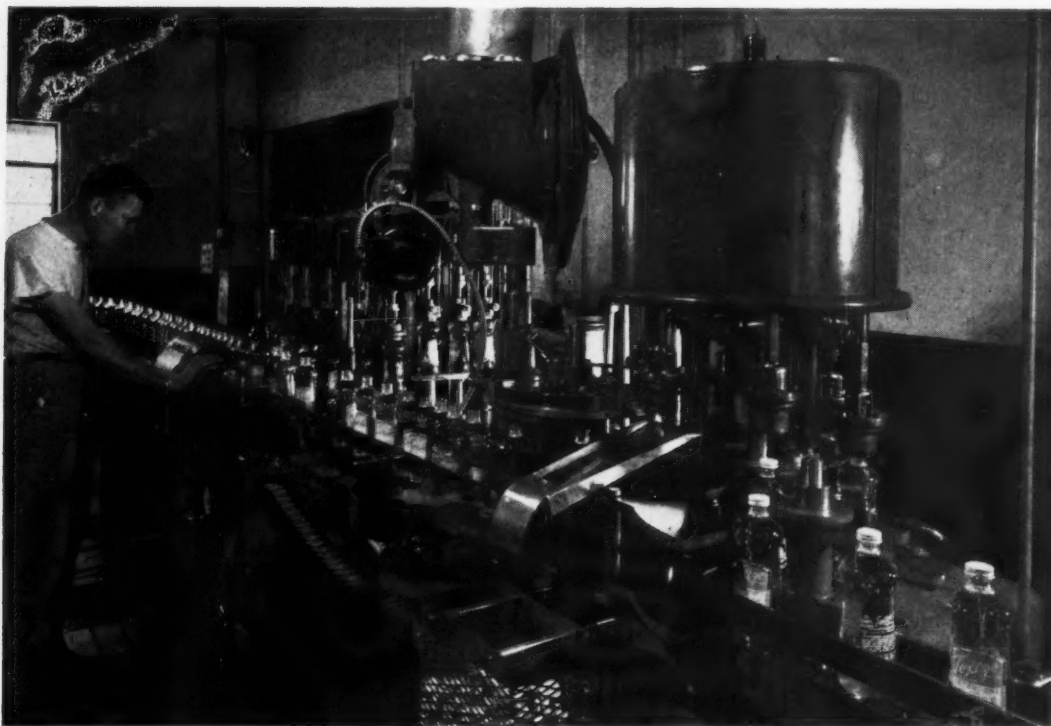


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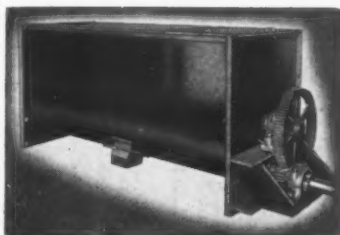


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NEW PASTE DISPENSER

peps up sales of
WATERLESS HAND CLEANERS

Designed for Waterless Hand Cleaners, Mechanic's Paste Soaps, Protective Creams and other paste or emulsion-type products. SO ECONOMICAL you can afford to lease a dispenser with sale of your soap products!

Model #200 is shown. It dispenses **YOUR BRAND** of waterless cleaner from your own factory-filled, expendable cans. Built for long service!

- No pressure plates!
- No levers or clamps!
- No product waste!
- Self-lubricating!
- Porcelain enameled!
- Eliminates leakage!
- Safe, sanitary!

Write for full information. Model #100 with refillable plastic dome is also available.



National Soap Dispenser Co.

230 W. 116th St.

Los Angeles 61, Calif.

chiefly to convey packages from floor to floor. It comes in belt widths of from eight to 24 inches and can handle loads of from 10 to 20 pounds per foot. Bulletins on both conveyors are available from Standard Conveyor Co.

Sequestrant Booklet

COPIES of a booklet on its sequestering agents, trade named "Perma Kleers," are still available from Refined Products Corp., 636 Schuyler Ave., Lyndhurst, N. J. One of the organic sequestrants is an all-purpose product; another is designed specifically for sequestering iron, while the third is for removal of iron in caustic. The sequestrants are claimed to work efficiently under hot, cold, acid or alkaline conditions and to provide larper metal chelation.

Dust Recovery Unit

A FREE booklet on "The Collection of Industrial Dusts" is now available from Buell Engineering Co., 70 Pine Street, New York, N. Y. The bulletin describes Buell's electric precipitator, which permits the reuse of recovered dust in many different operations. The use of such equipment has resulted in savings which more than offset its original cost.

Filter Press Closure

THE conversion of filter press closing mechanisms now in use to more efficient types can be accomplished in a short time by using a hand closing device, it was announced recently by D. R. Sperry & Co., Batavia, Ill. The device, designated "Handraulic" by Sperry, can be installed by the use of one bolt in a simple operation, the maker claims. A 42-page catalog on filtration problems may be had by writing to the company in Batavia.

Stainless Pails

THE availability of its 10 and 24 quart pails at considerable savings afforded through the use of a new type welded construction, was announced recently by Orange Roller Bearing Co., Orange, N. J.

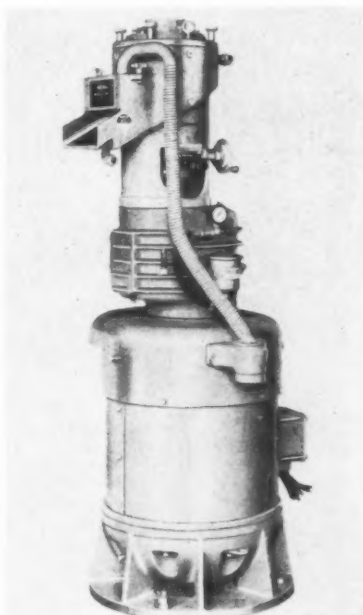
The new type construction is claimed to be equal to the seamless steel (#304), and thus is free from the danger of corrosion. Orders can be shipped promptly, according to the maker.

New Glyco Catalog

Glyco Products Co., New York, recently issued the 1956 copy of its catalog, "Esters by Glyco." The 24-page book describes the fatty acid esters of glycerol, glycols and polyethylene glycols. It features tables of the physical and chemical properties of each of these esters. Copies of the catalog are available on request to Glyco Products Co., Empire State Building, New York 1.

New Morehouse Mill

A new line of mills that feature handwheel adjustments with micrometer setting and positive lock were introduced recently by Morehouse-Cowles, Inc., Los Angeles. The mills are said to have a built-in stop that indicates time for stone replacement and a magnetic swirl arrester that reduces splash. Further information is available on request to Morehouse-Cowles, Inc., 1150 San Fernando Road, Los Angeles 65.



New Fritzsche Price List

Fritzsche Brothers, Inc., New York, recently announced their latest wholesale price list of aromatic chemicals, essential oils, flavors, etc. Copies of the 12-page price list are available to purchasers in wholesale quantities. Write to Fritzsche Brothers, Inc., 76 Ninth Ave., New York 11, N. Y.

UCC Ucon Booklet

Carbide & Carbon Chemicals Company, a division of Union Carbide and Carbon Corporation, New York, has available a new booklet on Ucon synthetic fluids and lubricants. The booklet covers properties, applications and characteristics of these polyalkylene-glycol derivatives, which can be used in hydraulic brake fluids, antifoam agents, heat-transfer fluids, solvents, and various types of lubricants. They are available in both water-soluble and water-insoluble series, with or without additives.

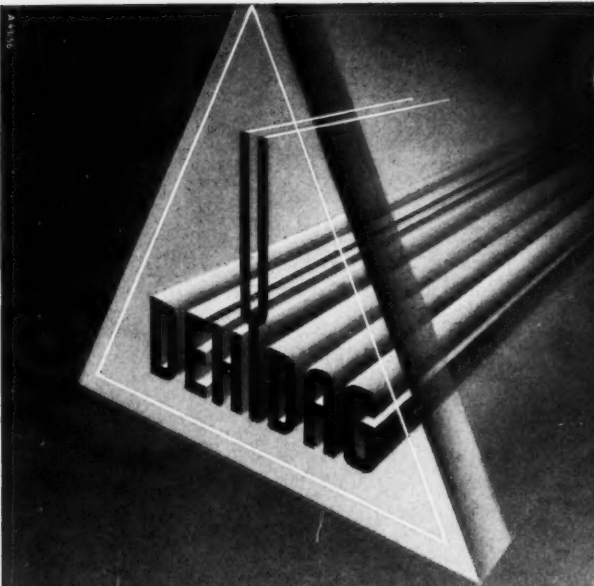
New Monsanto Booklet

The Plastics Division, Monsanto Chemical Co., Springfield, Mass., has announced a new 28 page booklet which describes the use of synthetic thickening agents as replacements for natural thickeners in a broad range of industrial applications. The thickening properties of seven Monsanto poly-electrolytes, are discussed, five in the "Lytron" series and two under the "Lustrex" trademark.

Covered in separate chapters of the booklet are chemical and physical properties, the preparation of solutions, applications and solvent compatibilities. Fifteen pages of curves show how viscosities of various latices vary with the latex concentrations for a range of the thickener concentrations.

Three Rhodia Booklets

Rhodia, Inc., New York has published three booklets describing the use of its perfume oils in various applications. The series covers perfume oils for shampoos, aerosol products and shaving creams.



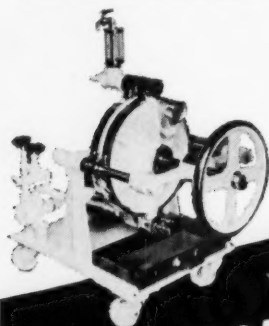
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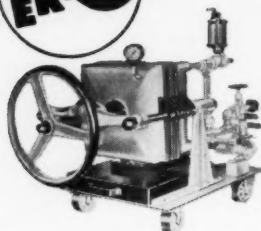
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SOAP PLANT *Observer*

By John W. McCutcheon

THE annual meeting of the Association of American Soap & Glycerine Producers, Inc., has come and gone. It is understood that this year's meeting broke all previous attendance records. The writer missed a few familiar faces, but this might easily have been due to the fact that some of the old-timers were lost in the sea of new faces.

No attempt can be made here to review the many interesting papers given, but a note or two on a few of special interest may be in order. "Radioisotopes in the Evaluation of Detergency", a paper by Dr. Christos Manos of Colgate-Palmolive Co., struck a particularly responsive note in the writer's mind, not only because of the subject matter itself, but by the able way the subject was presented and because of the enlightening discussion that followed. The paper reviewed the subject to date showing how Carbon-14 can be used in the soil medium and its concentration determined very accurately before and after washing. The method provides a more sensitive reading for lightly soiled cloth than usual reflectometer readings.

One very interesting device shown was a counter and tape printing device which automatically records as many as thirty-five samples without attention after the machine is loaded. The washing cycle is rather unique in that only 7 ml. of solution are required. This is best described in the words of the author as follows:

"The washing apparatus is specially designed for the use of these cloth discs, and uses only 7 ml of solution, a cloth to solution ratio within the range employed in practical washing operations. Two soiled cloths are mounted face to face in a ring assembly. Small irregularly shaped agitator pieces of stainless



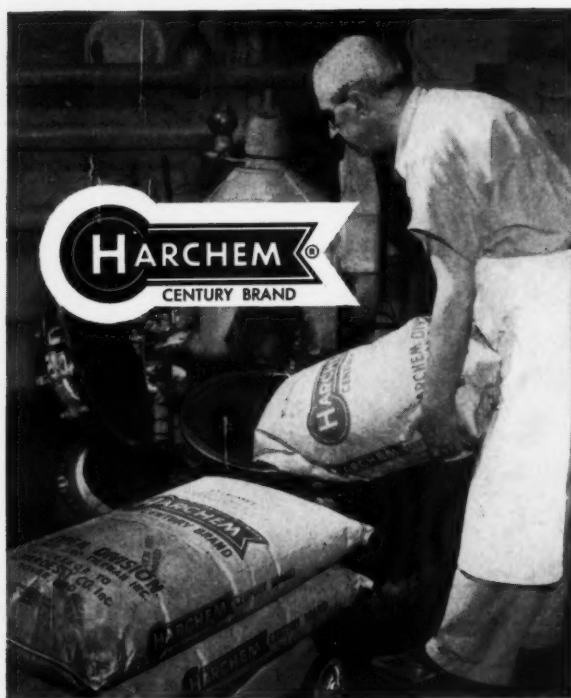
steel are placed on top of the cloth inside the upper ring to provide friction between the cloth surfaces as the ring assembly is bounced up and down. The motion also forces detergent solution through the cloth. A clean cloth disc, for measuring soil redeposition, is held at the bottom of the cup portion by a snug fitting ring. This whole assembly is uniformly agitated with a vertical oscillating action which is electrically timed for a 5 minute cycle. Temperature is controlled by a thermostated water bath. After swatches are removed from the detergent solution, they are pressed for 5 minutes between filter papers under a 1-kg weight before drying in an oven."

The use of radioactivity as a tracer is being broadened daily, as it should be. Practically all large laboratories visited over the past several years are equipped with Geiger counters and automatic recording means. F. J. Coughlin of Procter & Gamble for example in his paper on, "Detergent Research Related to Water and Sewage Treatment," mentions work done on the decomposition of alkyl aryl sulfonate in sewage by means of such tracer elements incorporated into the chemical constituents by synthetic means. California Research Corporation is

credited with this study. But the mention of the above practical applications of isotopes merely scratches the surface of what has already been accomplished by their general use. Such uses, however far removed now, will have weighty effects on the detergent industry in the near future. The discussion by Dr. Lauchlin M. Currie of Union Carbide Nuclear Company of "The Impact of Nuclear Science on American Industry" amply pointed this out and was most illuminating.

Another paper of special interest to the writer covered "World Trends in Fats & Oils in 1956" by E. L. Burtis, Food & Agricultural Organization of the United Nations. This paper predicted a continued strong export market for tallow and grease for the coming year and possibly for a period of years. The writer feels that this prediction based on a strong upward trend in soap production outside North America and Europe may not be too secure. The feeling here is that synthetics may enter into the picture more rapidly than may be expected. American fat and fatty acid research should be particularly encouraged and continued at this time. The present price of tallow is certainly not in step with other commodities and with the cost of production.

A paper on "Reducing Unit Costs Today & Tomorrow" by Professor E. H. Schell of Massachusetts Institute of Technology was timely. The paper brought to mind a point which a recent client made to the writer. This client's company had a system of budgeting cost reduction! The system which appears rather novel is worked as follows: Each production department is given a quota for saving the company so many dollars during the year. The object is to attain this saving by reduction of the cost of raw materials, manufacturing, process control, packaging, etc. At first glance this idea seems rather unusual. However, specific saving quotas were cited to prove that this idea really did work for the particular



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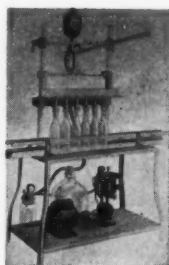
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*Booklet and form "Evidence of
Conception" forwarded upon request.*

company in question. Amounts quoted ran up to \$150,000 on unit operations. Perhaps it is the psychological aspect which is at work. For example, suppose the management said to the toilet soap department: your quota for saving is \$50,000 this year as against last year. The sub-management group then goes into a huddle and finds out that this sum can actually be saved by spending X dollars on A, B, C & D projects. Management is going to look pretty silly if it doesn't follow up these suggestions. Something like kicking oneself in the pants!

* * *

THOSE who think their system of production is AI and cannot further be improved may consider one of the fastest growing ideas in modern industry - automation. Just recently the writer was rather startled on this subject himself. After a rather hectic week or so discussing a rather large engineering job with a South American concern, the chief engineer then asked, "and would you please prepare a separate quotation covering the complete automation of this plant?"—this in addition to the normal process panel control! He was considering the process in terms of control such that the operator never had to leave his seat in the control room. This column has discussed various aspects of such control from time to time, but the importance of this subject to the detergent industry would certainly seem to warrant further details. This we expect to cover in the next few issues.

* * *

MANY times in the past, the writer has noted the reluctance of students and beginners to study fundamentals of their trade. It is easy to fall into faulty habits of thinking. Because one is studying a problem on alkyl aryl sulfonation it is difficult to see why one should also study sulfonation in general. Or, conversely, if one does know all about sulfonation why can't he be president of the company right away. The best advice on this sub-

ject the writer has ever seen occurs in the first chapter of the old book *Electromagnetic Devices* by H. C. Roters published in 1944 by John Wiley & Sons, Inc., New York.

"Successful development work in any field cannot be predicated upon superficial knowledge, but in every instance must depend upon a sound understanding of the fundamentals of the field, coupled to an imagination toned down by practical experience. Though it is true that experience is of inestimable value, it can sometimes be overrated.

"When dealing with the mathematically unpredictable, such as human emotions and relations, experience, mellowed by maturity, is the essential requisite. When dealing with an inanimate object which functions in direct response to the laws of mechanics and electricity, an exact, quantitative knowledge is a requisite if an analysis or design from only a functional point of view is required. If the particular object is to be practically and economically applied, experience does become an essential factor."

It seems to me that this paragraph could well be framed and presented to each graduate on entering industry. It must be studied carefully to be fully appreciated.

* * *

AN interesting bulletin on "Acrolein," issued not long ago by Carbide and Carbon Chemicals Company, 30 East 42nd Street, New York 17, N. Y., gives a review on this commercially available product. It is a highly toxic, inflammable liquid which can be shipped in drums or tank cars when inhibited with hydroquinone, and is a reactive chemical intermediate of versatile nature as shown by the many typical reactions given in the bulletin.

Acrolein was first produced by the dehydration of glycerol. Now the shoe is on the other foot, as it is understood that Shell Chemical Company's new synthetic glycerol plant will produce glycerine by the reaction of acrolein and hydrogen peroxide.

New Becco Bulletin

Becco Chemical Division, Food Machinery and Chemical Corp., Buffalo, N. Y., recently announced a new bulletin describing the properties of hydrogen peroxide solutions of more than 90% concentration. The seven-page Bulletin 70 describes the continuous fractional crystallization which makes it possible to manufacture hydrogen peroxide in the concentration range from 90 to 100%. A table of physical data for various concentrations above 90% is included. Stability, solubility, energy content, hazards, containers, engineering materials for handling and analysis procedures are also covered in the bulletin.

— * —

"Texapon" Mark Back

The old trade mark "Texapon" will once more be used to designate the line of fatty alcohol sulfates of Dehydag Deutsche Hydrierwerke G.m.b.H., Duesseldorf, Germany, it was announced last month. During the last two years these products have been offered as "Dehydag Sulfates".

— * —

New Tall Oil Plant

Arizona Chemical Co., New York, plans to build a new tall oil fractionating plant in Springhill, La., it recently was announced by Richard E. Sumner, president. The firm is jointly owned by American Cyanamid Co., and International Paper Co., and is a producer of tall oil products and tall oil rosins.

— * —

Diamond Alkali Sales Up

A record high in sales and earnings was recorded in 1955 by Diamond Alkali Co., Cleveland, it was announced recently by Raymond Evans, chairman and chief executive of the firm. Sales during 1955 totaled \$110,280,000, an increase of 18 percent above the 1954 figure of \$93,505,000.

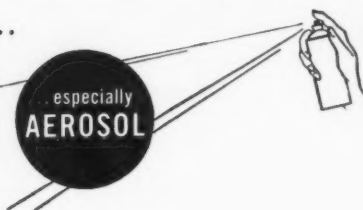
Diamond Alkali showed net earnings in 1955 of \$8,440,000 or \$3.38 per share, as compared with \$5,528,000 or \$2.14 per share during 1954.



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New "Breck Hair Set Mist" of John H. Breck, Inc., Springfield, Mass., began national distribution late last month. First pressure-packaged Breck product, the new hair spray is packaged in typical Breck gold, has four color flower illustration on front label and is topped with pink, plastic cap. Available in 4½ and 11 ounce sizes to retail for \$1.25 and \$2.00 plus tax, respectively.

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so you
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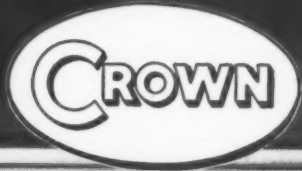
If you began today with a coo-oo-ooling, soo-oo-oothing push button shave, it's almost a sure bet that your rich, smooth lather was dispensed from a Crown SPRA-TAINER. *Practically every nationally-known distributor of aerosol shave creams chooses SPRA-TAINER in preference to all other pressure cans!* Here are some of the reasons:



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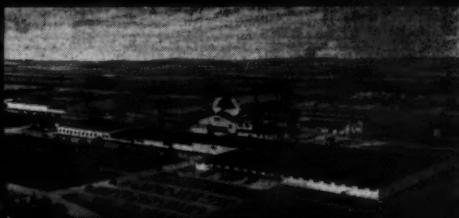


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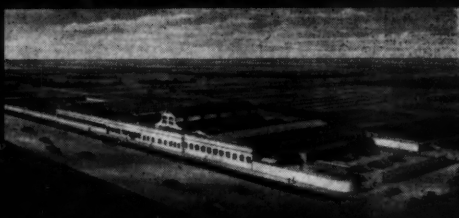
Plant No. 5 — Connellsville, Pennsylvania



Plant No. 6 — Salem, New Jersey



Plant No. 7 — Jacksonville, Florida



Plant No. 8 — South Gate, California



Plant No. 9 — Toronto, Canada



Plant No. 15 — Connellsville, Pennsylvania



Carr-Lowrey Plant — Baltimore, Maryland



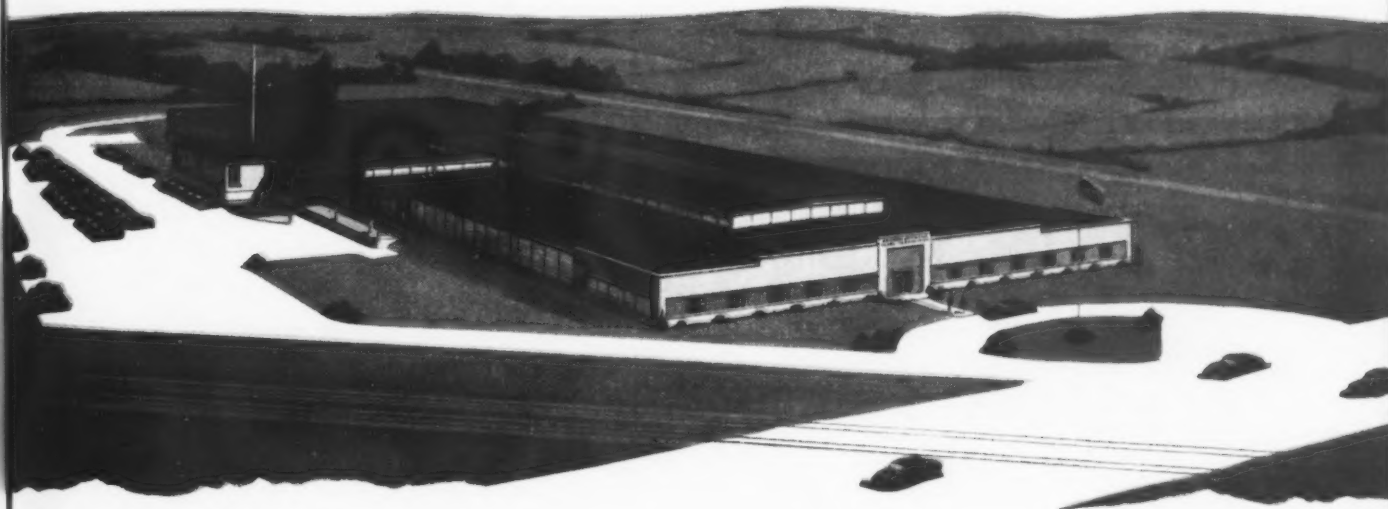
Swindell Plant — Baltimore, Maryland



Maywood Plant — Los Angeles, California



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Packaging Show Opens April 9

A RECORD attendance is expected for the four-day 1956 Packaging Exposition, to be held Monday through Thursday, Apr. 9-12, at the Convention Hall, Atlantic City, N. J. Nearly 400 exhibitors, also a record number, will be represented to show equipment, materials, methods and services. This will be the silver anniversary of the exposition sponsored, like the concurrent annual packaging conference, by the American Management Association. The conference is also held in the Convention Hall, and features talks on almost every phase of packaging by experts in their fields of discussion.

Three acres of exhibits are planned in the big hall, making this event one of the nation's largest annual trade shows. Some 30,000 persons attended the show in Chicago last year. At the last packaging show held in Atlantic City in 1954, attendance was put at over 24,000. This year's will be considerably larger, based on advance registrations and expectations.

A wide range of equipment and products is planned, the AMA said. Included will be all types of materials and equipment for packaging—from basic material to finished container.

At the three-day conference representatives of close to a dozen packagers of consumer and industrial products will describe how they package today and how they would like to package tomorrow.

The development of packaging in the 25 years since the first AMA packaging show—held in the Hotel Pennsylvania, New York, in 1931, with 34 exhibitors, 2,000 visitors, and a total area of 2,700 square feet—will be commemorated in a souvenir book for distribution to companies participating in the show. It will be titled, "Packaging Serves the Nation".

In addition to reviewing the growth of the show and of pack-

aging over the past 25 years, the booklet will show each booth at the 1956 show and will interpret the exposition in terms of the machines, equipment, supplies, materials and services applicable to each major industry that uses packaging. Among the industry categories to be covered are chemical, pharmaceutical, industrial, electrical, food, small consumer goods, textile, retail, paper, building supply and transportation.

Conference

THE AMA Conference program will explore the packaging field on a broad front, emphasizing throughout the growing importance and complexity of packaging and the resulting need for trained and qualified management personnel in this field. Specific topics to be discussed include organization structure for packaging, coordination with other functions in the company, characteristics and applications of packaging materials, trends in packaging machinery, and such specialized areas as control of color and printing quality, adhesives and plastic containers.

The opening morning will be devoted to presentation of a case study in coordinating the packaging function with marketing, production, and purchasing. Speakers from a consumer goods company with international distribution will discuss the packaging function in its numerous divisions and the automatic packaging operation, particularly in relation to the basic manufacturing operation.

Another morning session will take up the administrative and managerial structure of the packaging organization with both consumer goods and industrial products companies. The responsibilities of each member of the packaging department and his relationships with others within and outside his department will be outlined. These companies will demonstrate the sav-

ings which result from efficient management of the packaging function. They will describe techniques that can be applied in companies of all sizes to obtain substantial reductions in packaging costs.

An entire session will be given over to industrial goods packaging.

Representatives of a volume manufacturer of automotive parts will report on its long-range planning and its needs for semi-automatic and automatic packaging machinery development. Two large consumer goods companies will describe their projected requirements for packaging machinery.

How to evaluate quality of printing in incoming packaging materials will be discussed. A technique for determining whether printing quality is satisfactory and for ensuring uniformity among vendors will be described.

One session will deal with the adhesion methods of consumer organizations and converters. Another will be devoted to a study of plastic packages as they bear on increasing sales and profits, with stress on their role in impulse buying. Emphasis also will be placed on the importance of preparing specifications for these containers on a factual basis.

Conference, Show Hours

TO permit attendance at both exposition and the conference, the exposition will be open only in the afternoons and the conference sessions will be held in the mornings. The conference will open at 9:30 a.m., April 9, 10 and 11 and will close about noon. Meetings will be in the grand ballroom of the convention hall, with concurrent sessions in other rooms.

Hours of the show will be as follows: Monday, Apr. 9, noon to 6 p.m.; Tuesday, Apr. 10, noon to 9 p.m.; Wednesday, Apr. 11, noon to 6 p.m., and Thursday, Apr. 12, 10 a.m. to 3 p.m.

Information about conference registration may be obtained



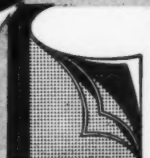
LARDBAK LINER.

Lardpak liner inside, then fibre, and printed Lardpak paper used outside. A grease barrier for scores of materials. Example of use: caulking compounds.



LARDBAK, PITCH-BACKED.

This combination offers the packer both grease and moisture resistance. Example of use: various chemicals.



FOIL LINER.

Foil backed by pitch followed by two layers of fibre laminated with glue. Pitch serves two purposes: As adhesive for foil (2) sealer for pin holes in foil. Example of use: seed inoculants.

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CHIP KB.

Pitch layers between layers of fibre, for moisture resistance. Convolute can shown here. Example of use: wallpaper cleaner, cold water paints.



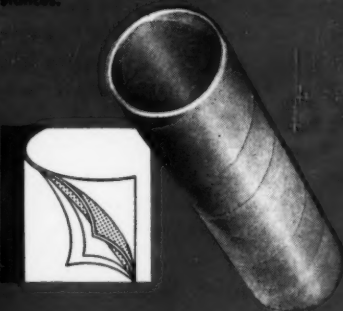
PARAFFIN COATING.

Paraffin lining obtained two ways: spiral wound from coated fibre, or sprayed in convolute can. Example of use: moth crystals, drugs, etc.



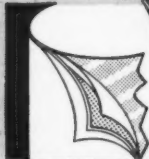
LAMINATED KLEERWRAP.

Lardpak liner inside, followed by fibre, followed by two pieces of glassine laminated together with wax. High grease and moisture resistance. Example of use: caulking compounds and similar "greasy" substances.



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from the Packaging Division, American Management Association, 1515 Broadway, New York 36, N. Y. Tickets for the exposition, for which there is no charge, may be obtained in advance from any exhibitor, from the AMA, or from the exposition management, Clapp

& Poliak, 341 Madison Ave., New York.

During the show tickets will be available in the registration area. Hotel reservations may be made through the Packaging Exposition Housing Bureau, 16 Central Pier, Atlantic City, N. J.

"Lux" Wins in 1956 Folding Box Contest

A SINGLE package for soap won the only two first awards given for any soap or synthetic detergent product package in the 1956 Folding Carton Competition, sponsored by the Folding Paper Box Association of America, Chicago. The winners of various awards were announced during the annual convention of the association in San Francisco, Mar. 12-14.

"Lux" toilet soap dispenser won two first awards, the only ones won by a soap or detergent product. One first award to the "Lux" package was in the soap category of the "superiority according to end use" classification. In addition, the "Lux" package, produced by Robertson Paper Box Co., Montville, Conn., won a "first award" in the "display containers" classification. A merit award winner in this class was "Palmolive" for men after-shave lotion of Colgate-Palmolive Co., New York.

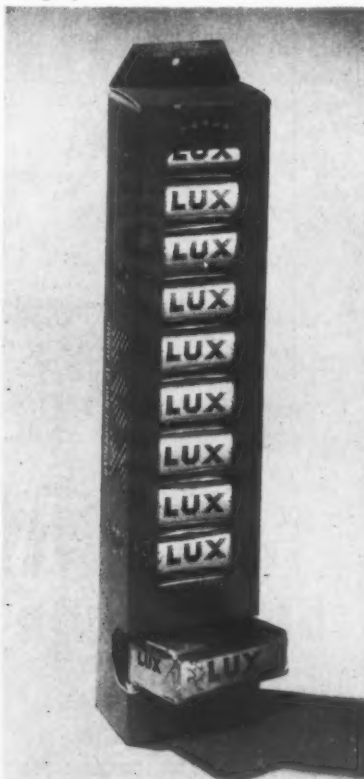
Merit awards in the soap

Colgate's "Ad" detergent carton received merit award in soap category of the "superiority according to end use" classification.



category of the "superiority according to end use" classification went to Gardner Board and Carton Co., Middletown, O., and Ohio Box-board Co., Rittman, O., for producing the "Ad" controlled suds detergent carton for Colgate-Palmolive Co., New York. In this category, too, the "Cheer" detergent carton of Procter & Gamble Co., Cincinnati, won a merit award. The "Cheer" carton, made by Ohio Box-board Co., also received a similar award in the gravure category for "superiority of printing".

This "Lux" soap dispenser of Lever Brothers Co., New York, received two first awards. One for "superiority according to end use" in the soap group; the other first award for the "Lux" dispenser was in the "display containers" category.



The carton for "Bubble Bus", a product of Tom Fields, Ltd., Chicago, won a merit award in the "superiority of construction" classification for boxmaker Federal Carton Corp., N. Bergen, N. J.

The 100 cartons winning awards in the Folding Paper Box Association competition for 1956 were selected from a record breaking total of 7,027 entries. Gustav L. Nordstrom, executive secretary of the association, said they were selected on a basis of technical quality as well as on such general merits as product protection, display value, merchandising value, practicability, and structural style.

Mr. Nordstrom also commented on "the trend to multi-color packages", which he said is "also noticeable".

Approximately 500 representatives of more than half of the manufacturers of the \$900 million folding paper box industry were expected to attend the association convention in San Francisco. One of the features of the convention was the complete display of the 7,027 entries in the 11th annual folding box contest. After the show the winning cartons will be displayed in major cities throughout the United States, in cooperation with local Folding Paper Box Association groups. The 100 award winning packages were chosen by top designers, advertising and art leaders.

"Cheer" of Procter & Gamble won a merit award in the gravure category for "superiority of printing."



How **TMC** King Size Disposable and Refillable pressure **CONTAINERS** introduce a Challenging Competitive Weapon



Cylinder Sizes from 2" to 8" Diameter
Lengths Up to 36"
Working Pressures Up to 475 psi

"Make it easier to use and people will use more of it!" That is an industrial axiom that has been proved again and again over the years.

The disposable can idea has already been accepted by Mr. and Mrs. America.

AND NOW industry is going "King Size" with TMC Disposable and Refillable Containers for aerosols.

On a volumetric basis the cost of TMC "King Size" Cylinders is no more than small capacity "can" type containers.

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Whether you need refillable or disposable cylinders, the experience of Tube Manifold engineering and marketing men will help you work out the most practical and profitable type. Sizes are available in accordance with I. C. C., U. L. and A. S. M. E. standards. Tube Manifold is geared for volume production with consequent cost economies. Your inquiry involves no obligation. Write or phone right now.



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AND CHEMICALS



CLOTHING, RUG AND
UPHOLSTERY CLEANERS



FIRE EXTINGUISHERS
AND TORCHES



PAINTS, LACQUERS
AND LUBRICANTS

Changes at Cont'l Can

Personnel changes in the metal division of Continental Can Co., New York, effective March 1,



L. Ylvisaker



E. L. Hazard

were announced by Reubin L. Perin, executive vice president of the division. L. Ylvisaker, former director of staff for the metal division in New York, has been advanced to general manager of the division's research and development department in Chicago. E. L. Hazard, former general manager of the northeastern district of the eastern division, becomes director of staff.

W. K. Neuman, previously general manager of sales, has been appointed manager of new products. He is succeeded as general manager of sales by R. S. Hatfield, who had been general manager of the north central district of the central division in Chicago.

Mr. Neuman and Mr. Hatfield will make their headquarters in New York.

In the eastern division, R. D. Heavyside, formerly district sales manager in Baltimore, has been named general manager of the northeastern district, New York. S. M. Bixler, previously plant manager at Harvey, La., becomes general manager of the mideastern district, Baltimore. J. S. Devlin, who

W. K. Neuman

R. S. Hatfield



was Houston district sales manager, is now general manager of the southeastern district, New Orleans.

In the Pacific division, C. F. Marquard, previously manager of production engineering for the central division, has been named general manager of the south Pacific district, San Francisco. Former Pittsburgh plant manager, J. W. Broomhead, now becomes general manager of the north Pacific district, Portland.

Expansion of metal container sales and the recent retirements of Hans A. Eggerss, former president, and of Sherlock McKewen, former vice president of the Pacific Metal Division, are cited as chief causes of the above changes.

U. S. Bottlers Names Reps.

U. S. Bottlers Machinery Co., Chicago, recently announced that it is now represented in Washington, Oregon, Idaho, and Montana by Duncan Equipment Co. of Seattle, with Roy C. Duncan in charge. In Utah, the Chicago manufacturer is represented by Frank J. Bott Co. of Ogden, and in Arizona, New Mexico and Nevada by Reuel W. Bartley of Tucson.

New Hildebrand Mixers

A new line of heavy-duty ribbon type mixers was introduced last month by Cincinnati Hildebrand Co., Cincinnati, O. The new models are suitable for mixing dry powders, crystalline materials and for cutting fats and oils into dry powders. Constructed of steel, standard units are equipped with a center discharge continuous ribbon agitator. Special agitators are available to provide end discharge of the mix, "Tee-head" type agitators to reduce lumpy type mixes, and a "cut-it-in" type agitator for blending operations. Standard discharge heights vary from 12 to 19 inches, but can be supplied to suit installations. In addition to steel the units are available in stainless and other alloys on special order. The new line includes eight mixers ranging in capacity from 25 to 450 gallons.



The 1956 board of directors of the Packaging Institute, representing the nation's leading suppliers and users of packaging material and machinery at their first 1956 meeting at the Columbia University Club, New York on Feb. 9: First row, l. to r.: H. Mosedale, Jr.; J. W. LaRocque, and W. E. Coughlin; second row, seated, C. F. Schokmiller; T. A. Torrence; Frank Greenwall; A. D. Murphy; R. V. Wilson; Miss Edna Higgins, Packaging Institute secretary; H. T. Holbrook, president; and C. W. Kaufman; third row, standing, R. J. Dahl; Frank S. Child, new Packaging Institute technical assistant; D. R. Grant; F. S. Leinbach; W. F. Daley; W. B. Bronander, Jr.; R. M. Schultz, and Charles A. Feld, executive director of the Packaging Institute.

Crown Names Hoffman

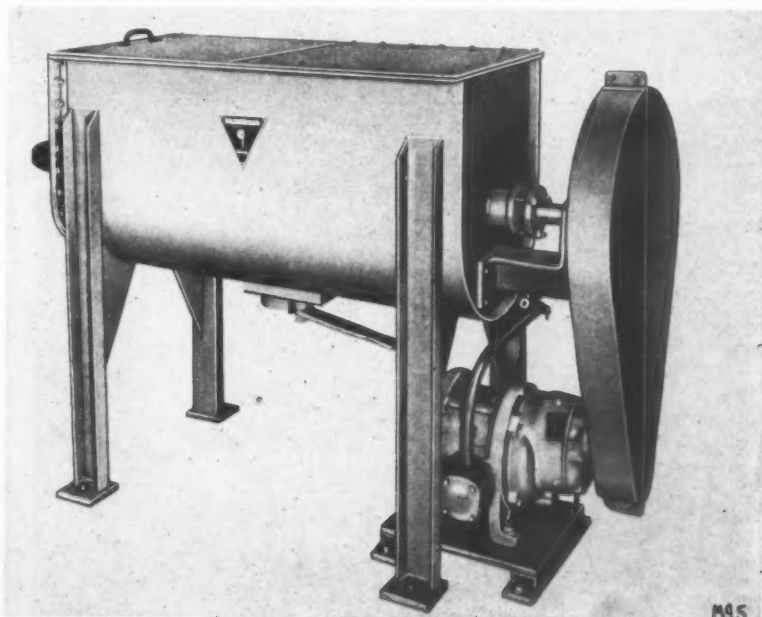
Ves Hoffman has been appointed St. Louis district sales manager of Crown Cork & Seal Co., Philadelphia, it was announced recently by William R. Fox, field sales manager of the company's crown and closure division. Mr. Hoffman is responsible for the sale of the company's complete product line, including crowns, closures,

cans and machinery.

The St. Louis district comprises Kansas, Missouri, southern Illinois, western Kentucky, western Tennessee and northern Arkansas.

Mr. Hoffman joined Crown in 1940 as a district sales representative for the company's specialty division in the Chicago district, later transferring to the New York district office.

New heavy-duty ribbon type mixer of Cincinnati Hildebrand Co., Cincinnati.





Display vendor for fall promotions recently announced by Toni Co., Chicago, uses natural tie-in to the "Schooldays" theme. Floor stand in shape of miniature school, has eye-catching red brick design printed on white board. School "slates" on sides list Toni products vended by display. Unit is designed to hold six to eight dozen assorted packages of "Tonette," "Bobbi," "Casual," "Tip Toni," and "Children's Prom" hair care preparations.

WHAT'S

New line of insecticides of Bridgeport Brass Co., Bridgeport, Conn., is packed in pressure containers by American Can Co., New York. "Slug-a-Bug" (third from left), claimed to be industry's first non-toxic insecticide, is top feature of the new line. Packed in 14-ounce cans, "Slug-a-Bug" retails for around \$1.98. Other products (left to right) include "Bug Bombs" in regular six and new 12-ounce sizes; new "Moth Proofer" in 14-ounce size; a new 14-ounce can for "Ant-Roach Killer," and a new 12-ounce size of "Aer-a-sol" insecticide with new formula that contains Strobane.



Federsigned packages for "Old Spice" shaving creams emphasize the fact that the products of Shulton, Inc., Clifton, N. J., are being made with new formula. Aim of the new cartons is to convey ideas of freshness, newness and quality. This is achieved through use of clean white board, brilliant and intense colors, sharp lettering, and "water-white" high gloss lacquer. Cartons are manufactured by Lord Baltimore Press, Baltimore, Md.

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"Krank's Brushless Shave" is now being packaged in new family of Gair-Foiline cartons, it was announced recently by Consolidated Royal Chemical Corp., Chicago. Cartons in family differ in construction to accommodate two sizes of jars and a tube, and are printed red and white on green.



New pressure packed accessories for home and picnic use are being marketed through the newly formed chemical division of Hamilton Metal Products Co., Hamilton, O. Marketed under the "Skotch Kooler" trade name the company uses for its line of picnic accessories, the new pressure packed grill and oven cleaner, charcoal lighter and insecticide also carry the familiar Hamilton plaid design. Packaged in 12-ounce cans, the cleaner retails for \$1.49, the lighter is 79 cents and the insecticide \$1.79.



new
Armstrong WAXCLEAN
Breeze right through your cleaning chores...
Use **Armstrong WAXCLEAN** for your floors

SO EASY TO USE
no hard scrubbing · no messy rinsing

Spread it on...
3 cleaning agents remove dirt and stains

Wipe it away...
and a lustrous film of wax protects your clean floor

TRY IT TODAY! made by the makers of **Armstrong FLOORS**

New "Armstrong Wax Clean," a new one-step cleaning and waxing product of Armstrong Cork Co., Lancaster, Pa., is designed for use on all resilient floors. Product is said to combine three cleaning agents and carnauba wax. Product will be packaged and sold in quart and gallon containers. Three-dimension counter display above features quart size. Special introductory offer includes distribution of coupons worth 50 cents toward the purchase of a gallon or 15 cents toward the purchase of the quart size package.

for repeat sales



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Also available with foam actuator.
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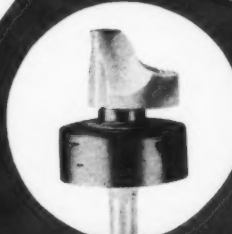


RI-71

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RISDON GR VALVE with "MICRO-MIST" ACTUATOR
(PAT. APPLIED FOR)

SOAP and CHEMICAL SPECIALTIES

Vulcan Names Fahey

The appointment of Gerald J. Fahey as sales representative for Vulcan Containers, Inc., Bellwood,



Gerald J. Fahey

Ill., was announced early in March by Herbert B. Scharbach, vice-president. Mr. Fahey is representing Vulcan in the Greater Detroit area. Prior to establishing himself as a manufacturers' representative, Mr. Fahey was purchasing agent for the Detroit Adhesives and Coatings Division of Minnesota Mining and Manufacturing Co. He had held this post since 1944. Mr. Fahey maintains offices at 6432 Cass Ave., Detroit 2. His telephone number is Trinity 5-6300 or Kenwood 3-3106.

All Purpose Gift Cartons

New four-color gift cartons designed to slip over standard product boxes were introduced recently by Stanley Home Products, Inc., Westfield, Mass. The package carries a pictorial decoration intended for general appeal to make it appropriate for all occasions. It does not carry any company or product identification.

The cartons are being manufactured by Lord Baltimore Press, Baltimore, Md., by the "Fidel-I-Tone" process. The design is by Marjorie Markley.

New Micronic Filter

A new micronic liquid filter, cleanable without interruption of flow, was introduced recently by Cuno Engineering Corp., Meriden,

Conn. Low operating and installation costs are claimed for this unit which removes particles down to 40 microns. Designated "Super Auto-Klean", the unit features all metal construction, small size, and high flow rates. It can be cleaned by hand or motor drive. An illustrated eight-page folder, describing the filter and including flow curves and housing specifications, is available from Cuno as catalog No. SAK-057.

Cont'l Can Buys Site

Continental Can Co., New York, recently announced arrangements to buy from Southern Pacific Co. 40 acres of industrial property located in San Leandro, Calif. New facilities for the manufacture of metal containers will be built on this site according to R. L. Perin, executive vice president of Continental Can's metal division, who said that construction will begin in 1957.



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Is Good*

**IT DESERVES
PROTECTION**



with VULCAN Containers

Guard the high quality of your product with Vulcan Steel Containers. Vulcan Pails and Drums are high-quality steel. Hi-bake linings are available—guaranteed to protect your product from any physical or chemical change due to contact with its container.

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or floral fragrance



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NEW Trade Marks

THE following trade marks were published in recent issues of the *Official Gazette* of the U. S. Patent Office in compliance with section 12(a) of the Trade Mark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the *Gazette*. See rules 20.1 to 20.5. As provided by section 31 of the Act, a fee of \$25 must accompany notice of opposition.

Copper Brite — This for cleaner and polisher for copper bottom utensils. Filed Sept. 30, 1954 by Copper Brite, Inc., Los Angeles. Claims use since Nov. 9, 1950.

The Golden Fleece — This for pot cleaners and scouring cloths. Filed Dec. 8, 1954 by Metal Textile Corp., Roselle, N. J. Claims use since on or about Nov. 2, 1954.

Glass-Wick — This for cleaning and polishing preparation for eyeglasses. Filed June 27, 1955 by Glass-Wick, Brooklyn, N. Y. Claims use since August 1950.

Qik — This for drain solvent. Filed Apr. 7, 1955 by Harry P. Steininger, Detroit. Claims use since Dec. 20, 1941.

Beauty Break — This for shampoo. Filed May 11, 1955 by Helene Curtis Industries, Inc., Chicago. Claims use since Apr. 14, 1955.

Gas-O-Clenz — This for solvent for cleaning fine mechanisms, jewelry, optical goods and dry cleaning. Filed May 16, 1955 by Gulf Oil Corp., Pittsburgh. Claims use since on or about Oct. 3, 1924.

Kirby — This for furniture polish, glass polish and floor wax. Filed Jan. 14, 1954 by Scott & Fetzer Co., Cleveland. Claims use since Apr. 15, 1952.

Orthosolv — This for liquid disinfectant and deodorant for garbage dump and sewage plant use. Filed Aug. 11, 1954 by Allied Chemical & Dye Corp., New York. Claims use since June 22, 1954.

Fleetline — This for antifreeze. Filed Oct. 5, 1954 by Joseph S. Levy, doing business as Randall Products Mfg. Co., New York. Claims use since Sept. 14, 1953.

Beads O' Bleach — This for dry bleach, disinfectant, germicide. Filed Oct. 18, 1954 by Purex Corp., Ltd., South Gate, Calif. Claims use since May 27, 1954.

Surfonic — This for surface active agents. Filed Feb. 14, 1955 by Jefferson Chemical Co., New York. Claims use since Dec. 15, 1954.

Sure — This for insecticides. Filed Mar. 11, 1955 by Covington Fertilizer Co., Andalusia, Ala. Claims use since June 19, 1954.

Super-Charge — This for general cleaning product for use by commercial laundries. Filed Nov. 3, 1954

by Armour & Co., Chicago. Claims use since Sept. 3, 1954.

Products-Sol — This for all-purpose cleaner. Filed Nov. 3, 1954 by Product Mfg. & Sales, Inc., Royal Oak, Mich. Claims use since Sept. 15, 1954.

Quick-O-Matic — This for sudsing cleaner, cleanser and detergent. Filed Mar. 2, 1955 by Colgate-Palmolive Co., Jersey City, N. J. Claims use since Sept. 22, 1954.

Hi-Dri — This for granular floor cleaning compound with incidental fire prevention properties. Filed Apr. 21, 1955 by Waverly Petroleum Products Co., Philadelphia. Claims use since Feb. 23, 1955.

Beverly — This for toilet soap. Filed Apr. 27, 1955 by Colgate-Palmolive Co., Jersey City, N. J. Claims use since July 1927.

Zip-O — This for general purpose cleaner for rugs, upholstery, glass and hard surfaces. Filed Oct. 3, 1955 by Louis L. Love, doing business as Pitman Laboratories, East Pitman, N. J. Claims use since September, 1943. Subj. to intf. with SN 695,936.

Zip-O — This for cleaner for upholstery, rugs and other textile materials as well as for other surfaces. Filed Oct. 5, 1955 by Pitman Laboratory Sales, Inc., Philadelphia. Claims use since in or about the year 1943. Subj. to intf. with SN 695,736.

Monocide — This for germicide for household or industrial use. Filed Feb. 3, 1955 by Mastercraft Plastics Co., Jamaica, N. Y. Claims use since on or about July 1, 1953.

Krisp-Chips — This for technical DDT. Filed Mar. 7, 1955 by Montrose Corp. of Calif., Los Angeles. Claims use since Jan. 21, 1955.

707-B — This for insecticides. Filed Mar. 14, 1955 by Bengal Co., New York. Claims use since Mar. 15, 1954.

Skyray — This for liquid bleach having sanitizing and deodorizing properties and used for household purposes. Filed May 3, 1955 by Purex Corp., Ltd., South Gate, Calif. Claims use since Apr. 4, 1955.

Perc — This for dentifrice having stain removal properties. Filed Oct. 20, 1954 by Beaute by Helene, Inc., doing business as Beaute by Helene, Miami, Fla. Claims use since May, 1953.

Keep — This for liquid detergent. Filed June 21, 1954 by Peck's Products Co., St. Louis. Claims use since February, 1951.

Hypersonic — This for shampoo and soap. Filed Oct. 5, 1954 by Post Institute, Inc., Tarpon Springs, Fla. Claims use since Aug. 17, 1949.

Hennafoam — This for shampoo and soaps in liquid and powder form. Filed Dec. 30, 1954 by Hennafoam Co., Newark. Claims use since Oct. 4, 1921.

Red Top — This for toilet bowl cleaner. Filed Apr. 11, 1955 by Red Top Products Inc., Omaha. Claims use since Aug. 2, 1954.

Mother's Darling — This for shampoo. Filed May 17, 1955 by

Nestle-Lemur Co., New York. Claims use since Apr. 15, 1955.

Atlas — This for rubber cleaning solvent for use in repairing tubeless tires. Filed June 1, 1955 by Atlas Supply Co., Newark. Claims use since May 20, 1955.

Dul-ta Brite — This for metal polishes. Filed June 14, 1955 by Dul-ta-Brite Products Co., Denver, Colo. Claims use since on or about Apr. 13, 1955.

Waxomatic — This for furniture and automobile polishing wax. Filed June 15, 1955 by Kenneth H. Goodman, doing business as Waxomatic Co., Los Angeles, Calif. Claims use since June 18, 1950.

teb — This for leather polish and preservative. Filed July 7, 1955 by Thomas E. Kee, doing business as Teb Research & Development Co., Chattanooga, Tenn. Claims use since Jan. 27, 1955.

Vapo-Aid — This for stabilizer for organic insecticides. Filed Aug. 12, 1953 by American Aerovap, Inc., New York. Claims use since May 8, 1953.

D.A.I. — This for pressure packaged insecticides. Filed June 28, 1954 by Whitmire Research Laboratories, Inc., St. Louis, Mo. Claims use since Oct. 1953.

Brite-N-Liquid — This for sequestrant. Filed Oct. 1, 1954 by Glyco Products Co., Brooklyn, N. Y. Claims use since Aug. 13, 1954.

Auto-Mist — This for sprayable liquid sanitizer and deodorant and pressure generating component designed for automotive use. Filed Apr. 5, 1955 by Allied Home Products Corp., Beloit, Wis. Claims use since Nov. 30, 1954.

Pro-Shave — This for brushless shaving cream. Filed March 24, 1955 by Pro-Capa Products, Inc., Brooklyn, N. Y. Claims use since Nov. 15, 1953.

Bright Beauty — This for liquid floor cleaner and heavy duty paste cleaner. Filed June 25, 1954 by Candy & Co., Chicago. Claims use since March 29, 1929.

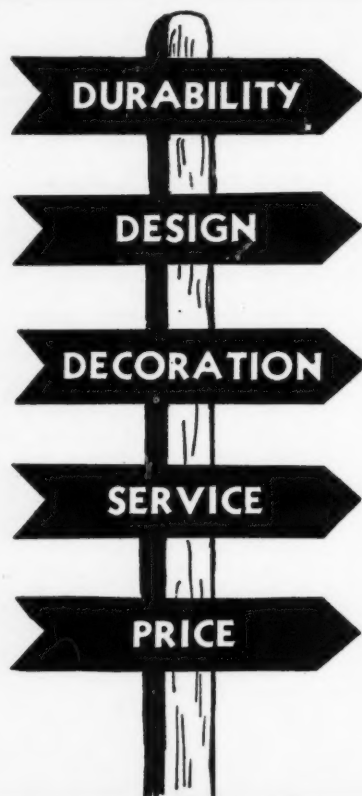
Dutch — This for powdered household cleanser. Filed July 9, 1954 by Cudahy Packing Co., Omaha, Neb., and assigned to Purex Corp., Los Angeles, Calif. Claims use since on or about Jan. 5, 1953 and since on or about Jan. 1, 1905 in the form "Old Dutch."

Nu-Da — This for paint cleaners and remover, and for wax base floor cleaner. Filed Dec. 30, 1954 by Indianapolis Paint and Color Co., Indianapolis. Claims use since on or about Jan. 15, 1931, on the paint cleaner.

La-Plus — This for shampoo and toilet soap. Filed Apr. 20, 1955 by Saint Cornelius the Centurion Chapel of Valley Forge Military Academy, Wayne, Pa. Claims use since Feb. 10, 1955.

3 R's — This for liquid rust remover and metal cleaner. Filed May 11, 1955 by Reliable Rust Remover Co., Chicago. Claims use since March 14, 1955.

all — This for detergents for use in automatic washers and for general washing and cleaning purposes. Filed May 16, 1955 by Monsanto Chemical Co., St. Louis, Mo. Claims use since Sept. 30, 1946.



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Pressure Packaging . . .

UNDERWAY at the present time is the Chemical Specialties Manufacturers' Association's annual survey of aerosol production. Scheduled for completion in time for announcement at the 42nd mid-year meeting in Chicago in May, the study will be its fifth. . . should continue to prove the best official barometer of the industry's condition.

Last year's CSMA survey, covering 1954 production, indicated the industry's output of pressurized products was nearing the 200-million-per-year mark. Although actual figures reported to the Association showed a total of 169 million packages, CSMA's survey committee upped the reported total to 185 million to include estimated production of companies which had not contributed their figures. Even the latter figure, many people in the industry think, was too conservative . . . true total production for 1954, they feel, was around 200 million.

What will the 1955 figures show? Guesstimates run from 250 to 300 million units, with a retail sales value of about the same number of dollars. At either end of that range, indications are that the production-sales "curve" on aerosols is still pretty much a straight line . . . up.

Reports in the trade indicate 1956 may be even more of a boom year for aerosols. At least there was no sign of the usual end of the year lull, and many industry barometers showed January and February to be unusually good months . . . well ahead of the same months last year and matching some of the lushest months of 1955. Everywhere you go, it seems, loaders and marketers are scrambling to beat manufacturing and delivery schedules . . . filling lines are full, plenty of orders appear to be on hand in most plants.

Continued value of the CSMA production surveys depends, of

course, upon the willingness of all members of the industry to contribute their production figures on a confidential basis . . . only an independent accounting firm --- never CSMA or members of the industry --- see the individual production reports. If one or two large loaders or marketers, or a fair number of smaller ones, decline to participate in the Association's survey, its value drops off for the missing reports could knock the reported total in a cocked hat.

Now, as the industry settles down to more conservative, but still progressive, growth, these annual surveys will continue to serve at least two very useful purposes. First, they'll help secure desirable media attention for the industry --- without reliable figures on which to judge the size of an industry and its relative importance in the economy, the business press and consumer media quickly forgets . . . focuses its attention on those segments of the industrial-business market that provide reliable measuring sticks of growth and success. Second, the studies keep the industry on its toes, perform a valuable

Beginning this month we start publication of a monthly column of news and opinions of new products, new developments and personnel in pressure packaging. Covered also will be new marketing and research ideas relating to aerosols. In addition, of course, elsewhere in the magazine we will continue to publish full length feature articles and news dealing with aerosols as extensively as in the past. The new column is another service to our readers. We invite our readers to write in when they have technical problems, which we will endeavor to answer. The Chemical Specialties Manufacturers Assn. and its Aerosol Division have offered their cooperation in making this column of value to all those who are now engaged in or are contemplating entering pressure packaging.

function in helping market developers chart their areas of greatest possible economic return.

For regardless of how you look at it, a lot of the present public awareness of aerosols is due to publications' editorial attention to the growing industry . . . and the CSMA surveys, with their colorful story of "miracle" growth, have been an important factor in keeping editors' eyes focused on aerosols.

Growth Factors

WHAT are some of other factors behind the industry's continued growth? Not the least, certainly, is the sharp increase over the last few years in the number of dealers in the field, with a consequent increase in the number of salesmen on the road. Loaders have increased many-fold, too, not only making it easier for people with ideas to find competent help in bringing their products to commercial fruition, but revising their own organizations to concentrate more on selling the aerosol principle.

Look back just a few years . . . most loaders' personnel consisted almost entirely of a plant manager, a technical man, and a management "jack-of-all-trades" who doubled in brass as a business administrator, treasurer, market researcher, and salesman. Today, many loaders have streamlined their organizational structure as the picture switched from a sellers' to a buyers' market . . . now are personnel-specializing, with individual experts devoting full time to sales management, product development, market research, production management, and technical research.

The one or two-man plants . . . the type of small business where you came up with an idea, loaded a trial batch or small quantity of aerosols, and then went out and peddled them . . . are fast disappearing. In their place are appearing more and more loading and marketing organizations with dozens of trained and efficient specialists on their staff. It's like developing the one-man corner grocery

store into a well-rounded supermarket operation to meet modern selling conditions.

If we wax enthusiastic over the future of the aerosol industry, don't misunderstand us. We *are* enthusiastic and we have confidence in the future of this packaging leader.

New Soft Drink Aerosol

WHILE it's not a true aerosol, by CSMA Aerosol Division definition, a new soft drink concentrate being test-marketed this month by C. C. Lang Company of Baltimore in the Jacksonville, Fla. area, is being watched with a lot of interest by the pressure-packaging industry. Lang, whose name is a byword in the pickle industry, is testing customer reaction to four flavors of a carbonated drink concentrate packed in a 17.6 ounce metal push-button container . . . you simply spray the concentrate in a glass of water to wind up with a carbonated beverage.

Dispensing pressure in the Lang package comes from a compressed gas --- a mix of carbon dioxide and nitrous oxide --- similar to that used in "aerosol" whipped cream packages. Price of the concentrate, we understand, is 39 cents per container, enough, Lang says, to make 18 full glasses.

Big point of interest will be the amount of consumer enthusiasm for the push-button package in this new stab at the food "aerosol" field. The aerosol industry, conscious of the shortcomings of a compressed gas, as differentiated from the liquefied gas used as the propellant in a true aerosol, look on Lang's test as another helpful bellwether for the day when they hope liquefied gas propellants will be approved for use with foodstuffs.

Liquefied gas propellants, of course, are barred from use in food products today because of uncertainty over toxicity . . . specifically how much fluorine, other than that provided by Nature, can safely be absorbed by the human body, since all of the liquefied gas propellants

in use today are fluorinated hydrocarbons. Du Pont, whose "Freon" propellants are used in many aerosol products today, has launched the required toxicity tests but says it may be two or more years before they'll know whether or not fluorinated hydrocarbons can be safely incorporated in foodstuffs. General Chemical, we hear, is looking into the same question in connection with their "Genetron" propellants.

Should the fluorinated hydrocarbon propellants be okayed for use in food aerosols, today's production figures on pressurized packages could be "peanuts". Whipped cream, for example, which is now available in the aerosol-type container with nitrous oxide and carbon dioxide as the propellant, sold last year in the neighborhood of 75 million containers. But many more potential purchasers declined to buy the push-button whipped creams because they didn't feel they got their money's worth, since all too often they wound up with no pressure but still some cream left in the can. That's a problem that doesn't appear to be readily solved with a compressed gas propellant. You can't include enough of it in an economical container to expel a reasonable amount of active ingredient. The dispensing pressure also falls off as the gas supply inside the container is exhausted so that the foam quality constantly changes as the product is used. A liquefied gas, on the other hand, provides a steady, uniform pressure so long as one drop of liquid propellant is available inside the container . . . and the amount of propellant can be adjusted easily so that there'll still be a drop left after all the active ingredient has been expelled.

Just to wind up this discussion of compressed versus liquefied gas propellants, especially until such time as liquefied gases are approved for insecticides — perhaps the Aerosol Division of CSMA should expand its definition of an aerosol to include those powered with a compressed gas . . . and get the compressed gas manufacturers and marketers of the whipped

creams and soft drink concentrates interested in Aerosol Division activities. From a practical standpoint, the compressed gas packages, despite their so called "shortcomings", are helping make the consumer conscious of the push button package.

Food Aerosols

INCIDENTALLY, one of the best summaries we've seen of current development and possible future trends in food aerosols was that presented by Earl Graham of Crown Container Division of Crown Cork & Seal before the Aerosol Division of CSMA last December. His paper is reprinted on Page 143 of this issue of *Soap and Chemical Specialties* . . . it's **MUST** reading, in our opinion, for everyone in the packaging industry.

Food aerosols, if and when the many current problems are solved, could be the biggest thing ever to hit the aerosol industry. More volume could exist in just one product type alone in the food field than in dozens of currently available types of self-spraying products . . . after all, everyone eats, and housewives today are quick to pick up and try any product that promises to make kitchen chores and cooking faster, easier, and more pleasant.

— * —

Canco Buys Ohio Land

An option was taken recently by American Can Co., New York, on a 22 acre tract for a new can making plant in the village of Woodlawn, north of Cincinnati. Construction will begin as soon as possible on the multi-million dollar plant which will be the firm's 61st container installation in the United States, Canada and Hawaii, according to L. W. Graaskamp, vice president in charge of the central division's operations. Cans for liquid detergents will be among the line of containers to be produced by the factory which will have an annual capacity of 200 million units. Plans call for approximately 200,000 sq. feet of floor space.

Chemical Specialties

Who's who...

THE membership list of the Chemical Specialties Manufacturers Association reads like a Who's Who of the Chemical Specialties Industry. Its membership embraces the outstanding leaders in the field. Large and small, these companies during 41 years of association activity have found innumerable benefits through participation in CSMA affairs. Its most recent meeting was attended by over 800 representatives of the industry.

If your firm is in the field of floor products, polishes, insecticides, disinfectants and deodorants, soap and detergent specialties, aerosol products, automotive chemicals or other specialties, you should investigate membership. Want further information?

H. W. HAMILTON, *Secretary*



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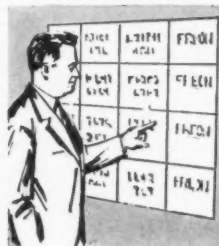
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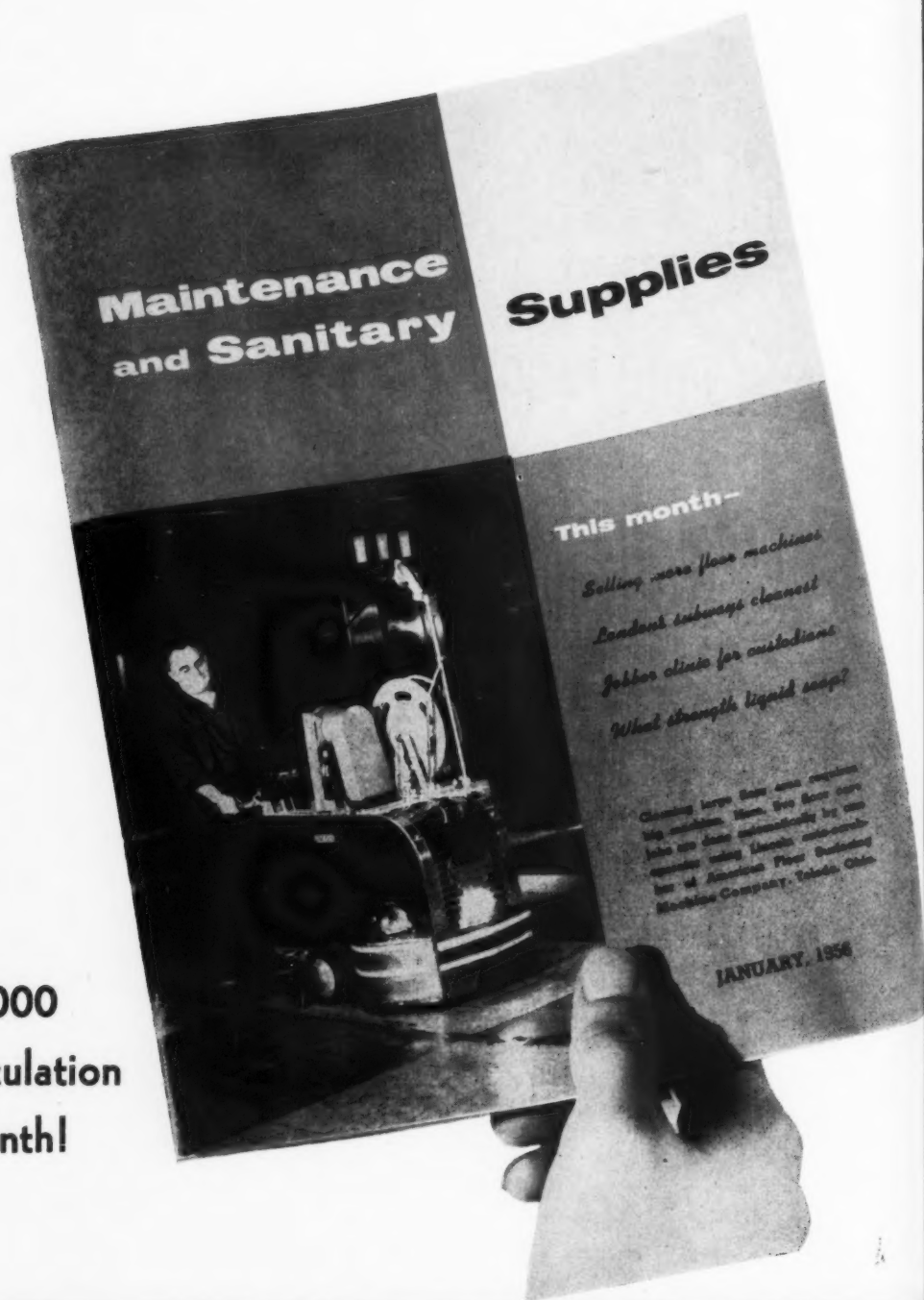
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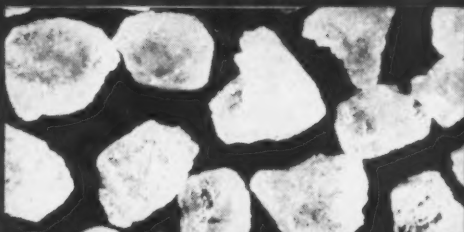
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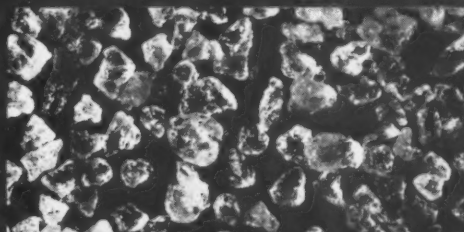
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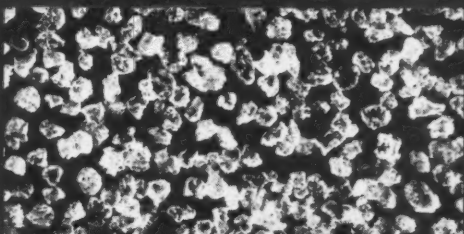
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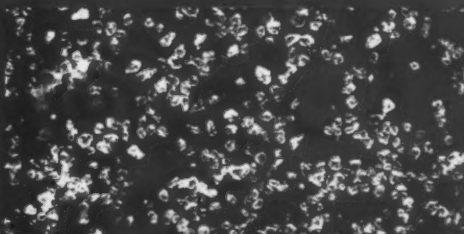
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SOAP and CHEMICAL SPECIALTIES

FOOD AEROSOLS

By Earl Graham*

Research Department, Crown Cork & Seal Co., Inc. Can Division
Philadelphia, Pa.

THE title of this paper is the ultimate in the capitulation of a colloid chemist to the name coining prerogative of the miraculously successful pressure packaging or aerosol industry.

Actually, food aerosols have been limited almost entirely to pressurized whipped cream or toppings; and, as such, their growth originally was even more meteoric than non-food aerosols. Within two years, by 1949, whipped cream reached an estimated production in one trip non-refillable containers of 30 million units. Refillable containers of pressurized whipped cream had been packed for the fountain trade since the 1930's. Aerosol industry survey figures (non-food) were not available until 1951 when a yearly production of about 42,000,000 units was indicated. For the year 1949, food aerosols (whipped cream) probably outnumbered non-food aerosols nearly two to one. However, in the ensuing years, whipped cream and toppings have grown at a slower rate so that in 1955 the production of such products is estimated at 60 million units, while non-food aerosols may be 250 million units or more.

Considering the large potential food market, this lack of development has been surprising to many people. With minor exceptions, food aerosols other than cream and similar toppings have been almost non-existent. Let us look at a list of food products which might lend themselves to pressurizing.

*Presented December 6, at 1955 at the 42nd Annual meeting, Chemical Specialties Manufacturers Association, New York.

Table I. Potential Food Aerosols

Cake frosting and icing	Mayonnaise
Catsup	*Marshmallow topping
Cheese spreads	*Meringue
Chocolate syrup	
Cooking oil	*Pancake batter
	Peanut butter
Flavoring syrups—fruit—maple	
Food pastes	Salad dressing
French dressing	Shortening
	Sour cream
Ice cream mixes	Soy sauce
Liquid butter	*Topping:
	dietetics
	vitamin added

*Denotes normally aerated

In examining the list one striking characteristic is noted, that with the exception of meringue, marshmallow topping and pancake batter, none of these food products are normally packaged or consumed

aerated. Even those indicated, excepting possibly meringue, are normally used with less aeration than whipped cream. Also note that on the list are relatively few products which are normally refrigerated, as

FIGURE 1 TYPICAL WHIPPING CREAM FORMULA

12 oz. CONTAINER

7 ounces WHIPPING CREAM MIX

4 grams COMPRESSED GAS

WHIPPING CREAM MIX

CREAM (30% BUTTER FAT)
STABILIZER (GELATIN OR VEGETABLE GUM)
VANILLA
SUGAR

*IN SYNTHETIC TOPPING, CREAM IS
SUBSTITUTED BY SOYA PROTEIN
AND/OR HYDROGENATED VEGETABLE OILS*

COMPRESSED GAS

NITROUS OXIDE 100%
or
CARBON DIOXIDE 15%
NITROUS OXIDE 85%

is whipping cream both in its pre- and present pressurized form. It is apparent that pressurized whipped cream was a "natural" as a commercial aerosol, readily fitting into American established culinary and eating habits.

The technology of pressurized whipped cream has previously been reviewed (1) and we will merely summarize here. Figure 1 shows a typical whipped cream formula.

The technique of filling aerated cream or topping is relatively simple. The cream is gravity filled into the can, cap with valve placed and crimped, then gas added under pressure, usually with agitation to facilitate the solution of the gas. This is illustrated in Figure 2.

A temperative pressure curve of whipped cream gas compared with a Freon-Genetron type propellant is given in Figure 3.

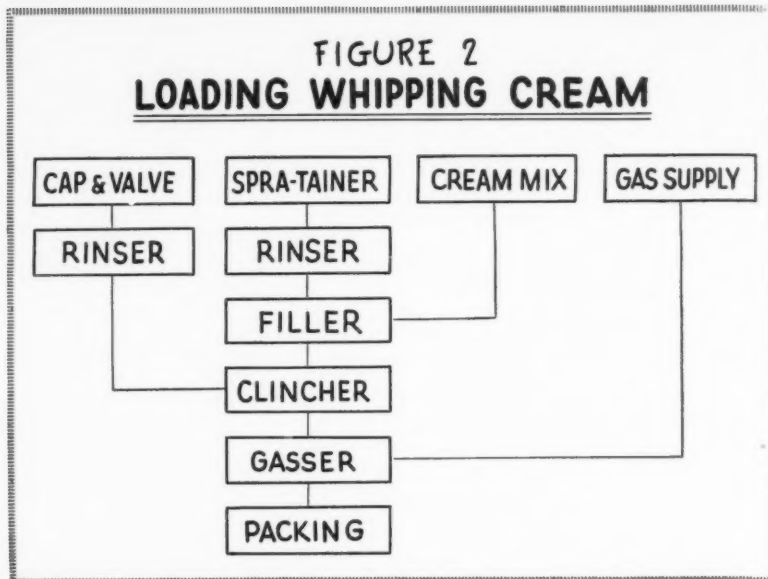
Since a compressed, rather than liquefied, gas is used as a propellant, it is not possible to package more than 7-oz. of cream in a 12-oz. container and maintain a good relationship between initial and final dispensing pressures. This is important since the overrun or degree of aeration of whipped cream is largely a function of the amount of gas in solution which, in turn, is proportionate to the internal pressure of the system.

Problems Involved

IN considering pressurized food products, a number of problem areas are apparent:

1. Physical characteristics as viscosity and gas solubility.
2. Biological stability or preservation.
3. Economics.
4. Food laws—federal, state, and local.

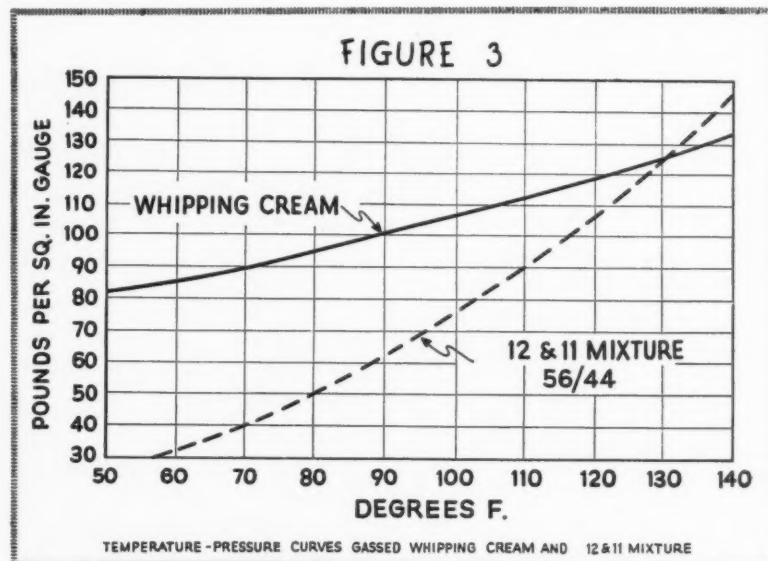
Let us look at some of the food characteristics which offer special problems. In this regard it should be remembered that all food and non-food aerosols up to now have been dispensed as a foam, spray, or true aerosol. It is not possible yet in the art (at least it

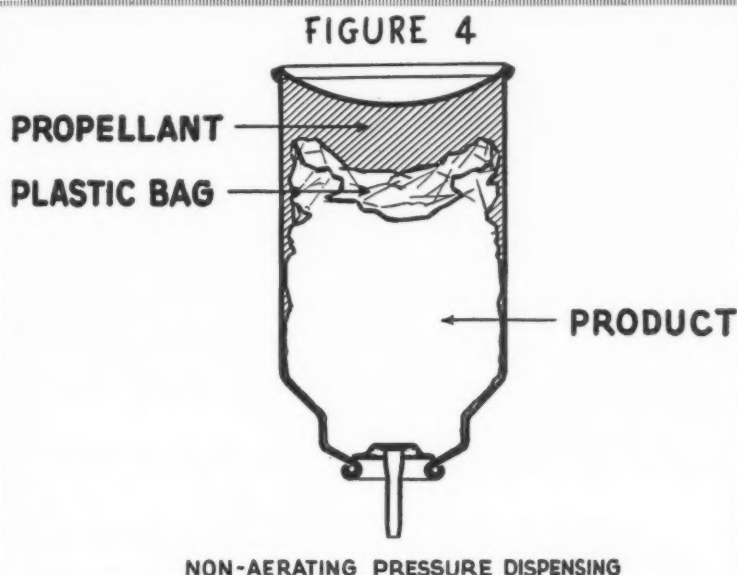


has not been done commercially) to dispense a product from a pressurized container without something being done to its physical state. For a food as catsup, this aeration is disastrous. On dispensing, a foam results, the color and texture of which is quite different from that of the normal bright red tomato product known as catsup. Can this obvious inadequacy be overcome? The solution may be available shortly as the result of work being done on non-food aerosols.

It is no secret that many feel that for a pressurized toothpaste to

be commercially satisfactory, it must be dispensed in non-aerated form. This is being worked on by various methods; the most obvious solution being the use of an inner plastic container holding the product to be dispensed. Since this method has been considered for various products since the inception of the industry, we do not believe we are giving away any secrets in presenting a diagram, Figure 4, as to how this might be done. The gas pressure forces the product through the valve without actually mixing with it. Assuming that a non-permeable plastic film were obtainable and





suitable means of sealing off at the valve were developed, there is no technical reason why a non-aerated catsup could not be produced with the above designed container.

Another characteristic of many foods which presents problems is their high viscosity. As normally formulated this precludes their flow through the valve ahead of the gas propellant.

Comparative viscosities of representative food products as determined on the Brookfield Viscosimeter are given in Figure 5. The range of viscosities obtained on the same food product indicates their thixotropic nature.

Products with very high viscosity such as peanut butter, cheese spread, and marshmallow are impossible to dispense without reformulations. This is also true with salad dressing; only by reduction of viscosity can a satisfactory product be obtained. This is done with salad dressing by replacing some of the oil with water and milk solids. On the other hand, with some food products such as chocolate syrup, when used as a frosting, a foam stabilizing agent must be added. If this is done, care must be taken that the viscosity is not increased to a degree which makes it impossible to dispense.

Likewise, a physical stability factor may be encountered as when the oil content of peanut butter is increased to lower viscosity. It can be said that when each food product is reformulated for pressure packaging, additional technical problems are added to those already existing.

A major problem with food aerosols is that of biological preservation. When a food product such as salad dressing or syrup is reformulated for pressure packaging,

changes in composition such as moisture content may alter the biological stability. Most pressurized whipped cream and toppings have been refrigerated or frozen. One manufacturer does produce a sterile whipped cream, but recommends refrigeration for chemical and physical stability.

For new food aerosols, particularly those reformulated to introduce a preservation factor, there needs to be a combination of the technique of pressure packaging and the newer food preservation methods such as aseptic canning. Research and development in this area are under way, and there may well be a commercial operation combining these technologies in 1956.

The economic factor is, likewise, one of concern. Will the consuming public pay the premium of aerosol packaging on a low price item which normally sells for 10, 20, or 30 cents? Here is a comment on this from the *Progressive Grocer* of August 1955:

"More Foods in Pressurized Containers are reported on the way. The success of pressurized whipped cream toppings has apparently convinced other manufacturers that this type of built-in convenience can help the sale

(Turn to Page 195)

FIGURE 5
COMPARATIVE VISCOSITIES

<u>PRODUCT</u>	<u>VISCOSITY in CPS.</u>
30% WHIPPING CREAM	12
AEROSOL WHIPPING CREAM MIX	29 to 35
SALAD DRESSING	33,000 to 59,000
AEROSOL SALAD DRESSING MIX	380 to 2,700
CHOCOLATE SYRUP	650 to 1,200
CATSUP	3,100 to 15,000
MUSTARD	5,600 to 32,000
PEANUT BUTTER	over 94,000
CHEESE SPREAD	over 94,000
MARSHMALLOW TOPPING	over 94,000



Do-It-Yourself Market

THE basis of this article is market research for industries selling directly or indirectly to the non-domestic consumer: In this particular case for the manufacturer and distributor of cleaning and general sanitation products to industrial, commercial and institutional users. Strangely enough while there are numerous compilations of statistics and data available in the domestic consumer field, there is none that the writer has found in the field under review.

To be able to do one's own market research and sales analysis it is essential to have at one's disposal the services of a punch card system. Of course it can be done without, but then it becomes extremely laborious and therefore probably not economical.

At the outset we had better define clearly what is meant here by market research. In the first place it is based upon available statistics and does not include any of the various sampling techniques. Secondly, it is designed to establish the available business potential and not in this limited sense the acceptability of specific products, because the purpose here is to cover the field broadly rather than specifically in view of the very wide categories of products involved in our industry. For instance research on potentialities for a new soap dispenser would require quite a different approach than that for disinfectants. Thirdly, it is designed for the purpose of comparing sales in one area with another and for estimating the po-

tential of and the optimum geography of projected territories in the future.

It is apparent that this article will also omit investigation of a very important part of market research. This has to do with factors determining use of products, frequency, volume, etc., the number and size of prospective customers, the number of calls a salesman can make, their frequency, the amount of time he spends servicing each account, the evaluation of the number of contacts he can make and service. These are very weighty matters and are only to be overlooked in this article because the author has not the requisite experience to write about them.

In short the system to be described is for two main purposes.

- (1) Planning new territories
- (2) Comparing results of present territories for the purpose of setting up quotas or judging the relative efficiency of sales representatives.

Sales Analysis

BUT before expending any time on market research or perhaps more strictly geographical sales potential analysis, it is essential that one be in a position to evaluate the results and to do that one must have an efficient system of sales analysis.

To do this efficiently we should use a punch card system. One word of warning—a punch card system is not economical unless from it one can derive more than

By W. S. Jessop

U. S. Sanitary Specialties Corp.

two uses from the set up or its full working capacity can be utilized for a great part of the time. This is apparent from the system in use at the writer's head office, which will be described in some detail.

When setting up a sales analysis system it is always advisable to use some of its aspects needed by the accounting as well as by the sales departments and by top management.

In our case we use the same punch cards for preparing

- (1) Sales taxes by States and cities where required
- (2) Salesmen's commissions
- (3) Controls for posting to general ledger

The above being of purely

Operator with Underwood Corp., Samas punched card sorter.



et Research

accounting nature will not be detailed but they should be borne in mind when planning the system. Other uses beyond sales are for payroll, purchasing and accounts payable, inventory control and perpetual inventory.

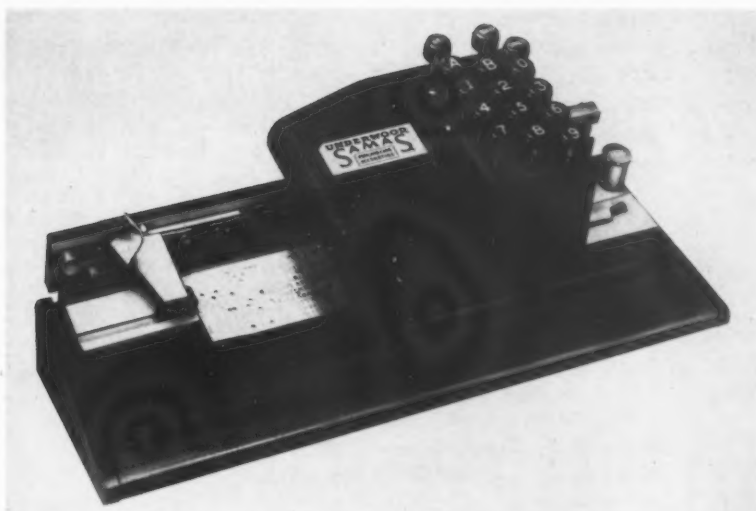
The real headache and the key to the success or failure of the installation is the preparation of the punch card codes. One has to be extremely versatile to make full use of the card and yet not exceed the number of fields available.

For relatively small businesses our company has found the Underwood Samas the most economical. It is as efficient as other systems such as IBM or Remington Rand both of which are excellent. Underwood-Samas however uses a smaller card than the others, thus economizing on storage space. This card has forty fields, which we have found sufficient.

Preparing the code depends much on how one wants to use it and therefore what we use may not necessarily suit another firm even in our own industry. However, what we use will give some idea of the necessary versatility.

The coding we use is as follows:

- Field 1 Month of sale (arranged to go up to 12)
- 2 Day of sale (arranged to go up to 31)
- 3 Year of sale (last digit only)
- Field 4 through 10 is the customer's code.
- 4 and 5 Indicating the State in



Close-up of the Underwood Corp. Samas card puncher. This unit, author says, is most economical unit for the small business operation.

which the customer is located or, for national or chain customers, the point to which shipped. As there are 99 figure codes available this should provide sufficient codes for each state and cities where special taxes have to be accounted for. Sorting on these fields provides detail for sales or use taxes.

6 and 7 Indicating type of customer whether industrial, retail, commercial, institutional or governmental, which can be further broken down for finer analysis.

8,9,&10 General numbers available for customer except zero in field 8 is reserved for national or chain customers, who thereby have the same last five figures in the code no matter where merchandise is shipped.

Field 11 Shows tax status whether exempt or not and under what kind exemption.

Field 12 Shows the shipping point; in other words plant, factory or storage warehouse from which the merchandise is shipped or

whether drop-shipped in the case of direct shipments of jobbed merchandise.

Fields 13 and 14 Represents the territory (or salesman) to whom the sale is credited.

Fields 15 through 18 is used for invoice numbers (these start again every calendar month)

Field 19 Shows the unit of merchandise whether 55 gallon drums, 12 gallon carboy or a case. It will be found by grouping in the next field all similarly packed products, i.e. liquids in metal, liquids in glass, powder in barrels, cased goods and unit sales, this one field can cover separately all containers and packings in each group.

Fields 20, 21, & 22 indicates the individual product. Field 20 indicates, as already mentioned, general type. Field 21 should be grouped to show end use such as toilet soaps, floor waxes, polishes etc., so that a sort on this field will give a total of that class of product. Field 22 is used to give every product an in-

dividual code number.

Field 23 Shows the rate of commission payable on the sale. For instance if all products code 2 in this field pay a 30% commission then a sort of these for each salesman (fields 13 & 14) and tabulation of totals give you his earnings.

Fields 24 through 27 is the quantity of the product sold expressed in full thus 2 55-gallon drums would be punched as 110 not 2. Derivation of the unit involved is done by sorting on fields 19 and 20. In this way an analysis can be made, too, on container usage. Thus, if after sort and tabulation it is found that quantity sold in 30 gallon drums was 62700 gallons, then the number of 30 gallon drums used would be 2090.

Fields 28 through 33 is the dollar and cents amount for that item.

Fields 34 through 36 is used for the dollars and cents of the sales tax; and

Fields 37 through 40 for any transportation in charges.

It being understood that for every item on the invoice a separate card is punched (except for the tax and transportation, which only appears on one card of a multi-product invoice.)

From the foregoing it is apparent that many analyses of sales can be made on a daily, weekly, monthly, quarterly or annual basis.

Let us enumerate briefly:

1. Sales by state and large cities
2. Sales by industry
3. Sales by product
4. Sales by salesman or territory
5. Sales by shipping point
6. Sales by container or packing type
7. Sales by commission group

All of the above can be expressed in physical and dollar volume. Sales by product, of course,

10/10/	CUSTOMER										PAID	REF	DESCRIPTION	DRUM	AMOUNT	DRUM DESC.
10/10/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
11/11/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
12/12/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
13/13/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
14/14/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
15/15/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
16/16/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
17/17/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
18/18/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
19/19/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
20/20/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
21/21/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
22/22/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
23/23/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
24/24/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
25/25/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
26/26/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
27/27/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
28/28/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
29/29/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
30/30/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
31/31/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
32/32/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
33/33/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
34/34/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
35/35/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
36/36/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
37/37/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
38/38/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
39/39/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L
40/40/	ST	IND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	AMOR L

Typical Underwood Samas punch card used by the author's firm.

expressed in physical volume, is a necessity for any perpetual inventory system.

The above can of course be broken down further, as they are total sales. They can be broken from total sales to sales to each classified industry by product or sales by each territory by product or by commission group and so on. Thus a very complete analysis of all types of sales in many combinations can be very easily provided for management's study.

Now it is not absolutely essential that such a detailed sales analysis be set up before embarking on market research but it certainly will make the results of your market survey described below much more accurate and pointed.

Market Research

ONE of the crucial problems for every sales executive and no less in the chemical specialty field is to assess sales potential. A very interesting and brilliant address was given by Melvin Fuld, retiring president of the Chemical Specialties Manufacturers Assn. on "Business Forecasting Do it Yourself" at the December convention in New York. In this, into which must have gone much arduous research, the business executive was shown how he can forecast business trends, cycles and the like based on a series of indices and statistics. Such forecasting is becoming an essential of all management so that business gambles and risks (business is always a gamble) become calculated risks. Market research or perhaps better called here Sales

Potential Survey is an extension, a specialization, if you will, of general business forecasting, an application of it to the sales field.

The tools required for this are very simple. They are:

- (1) Statistics
- (2) Maps
- (3) Punch cards

Of course, these require some further elaboration.

Statistics

THERE is no need to think of statistics as a dirty word and perhaps before starting it might be as well to read the chapter "Business Uses of Index Numbers", appearing on pages 20-122 of McGraw-Hill's *Chemical Business Handbook*.

Statistics, like semantics, mathematics, etc., is becoming a science and like other sciences has what are euphemistically called "laws". These have become highly complicated, like the quantum theory and the racing form, and are based on the Law of Probabilities. In other words, statistics do not pretend to yield complete accuracy of results, but the larger the sample or being more voluminous a much more accurate norm, mean or average can be obtained. This can be used as a tool among others in determining matters such as the subject of this article.

The key to the whole problem in essence is twofold:

- (1) Choosing the right statistics, and
- (2) Giving them effective weighting

In choosing statistics regard

must be given to availability. It is better in this case to put the horse before the cart, for on a "Do it yourself" basis the practicality and ease of acquiring statistics must have a priority unless, of course, such easy-to-find statistics will only give a distorted picture. However, for the reasons set out below, I do not think this is so.

The three main fields our industry is concerned with are:

- (a) Industrial
- (b) Commercial
- (c) Institutional

Let us look at these each in turn.

(a) *Industrial*. By this is meant manufacturers, public utilities, transportation; in short, in all cases where something is done to raw materials - mining, extracting, processing, converting, refining, etc. - to convert them to something else and the means to distribute raw materials or finished product.

The most general indicator of this, and the one which is broken down to a county and large city category is the "Value Added by Manufacture," found in the Census of Manufacturers (U.S. Department of Commerce, Bureau of the Census). Other statistics are available such as

- (I) Number of establishments - but this does not give a value, that is to say, a small factory is equated with a large one.
- (II) Number of employees, total man hours or payroll. These may be of major significance to businesses selling skin cleaners and to them maybe the preferred index.
- (III) Cost of materials, utilities, etc. - this may be an indicator which overweights the cost of raw materials - thus a refiner of platinum would be over-emphasized as against a refiner of oil. For the same reason the value of products shipped might also give a distorted picture.
- (IV) Expenditures for new plant and equipment which obviously cannot give a picture of industrial work but only of industrial expansion.

Value added by manufacture, including as it does payroll and overhead, but excluding raw materials, utilities and contract work will give an adequate picture of the nation's industrial worth in a geographical breakdown. These figures are helpful since we are dealing with sanitation materials saleable in almost every kind of plant and establishment in amounts, which will vary more than anything else with

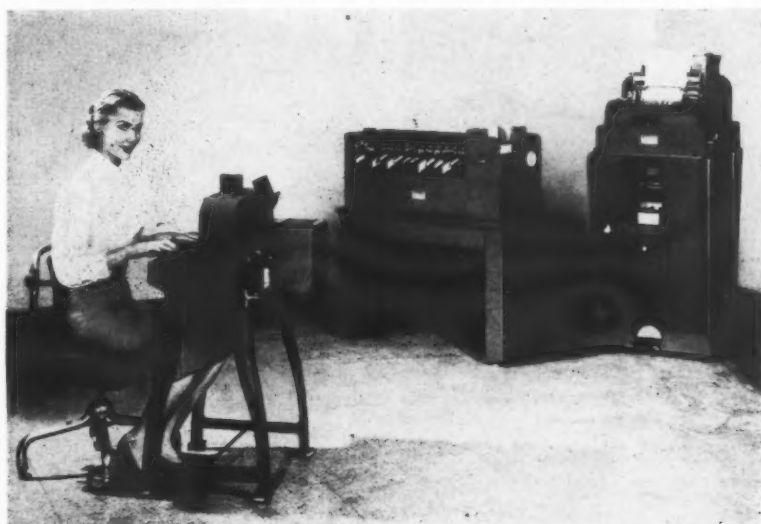
the size and employment of the plants. If something more specific is desirable, the Census of Manufacturers is broken down also into industry classification so that it is possible to eliminate those industries, which you may think not potential customers or, contrariwise, only include those industries which are potential customers. For our particular purpose we consider that plants more likely to be potential customers will, on the whole, average out those less likely to be potential customers even in the geographical breakdown. Thus, we are disposed to use the "Value Added by Manufacture" expressed on a percentage basis of the national total as the Industrial Indicator. The 1954 Census of Manufacturers is being published now but you will have to calculate your own percentages.

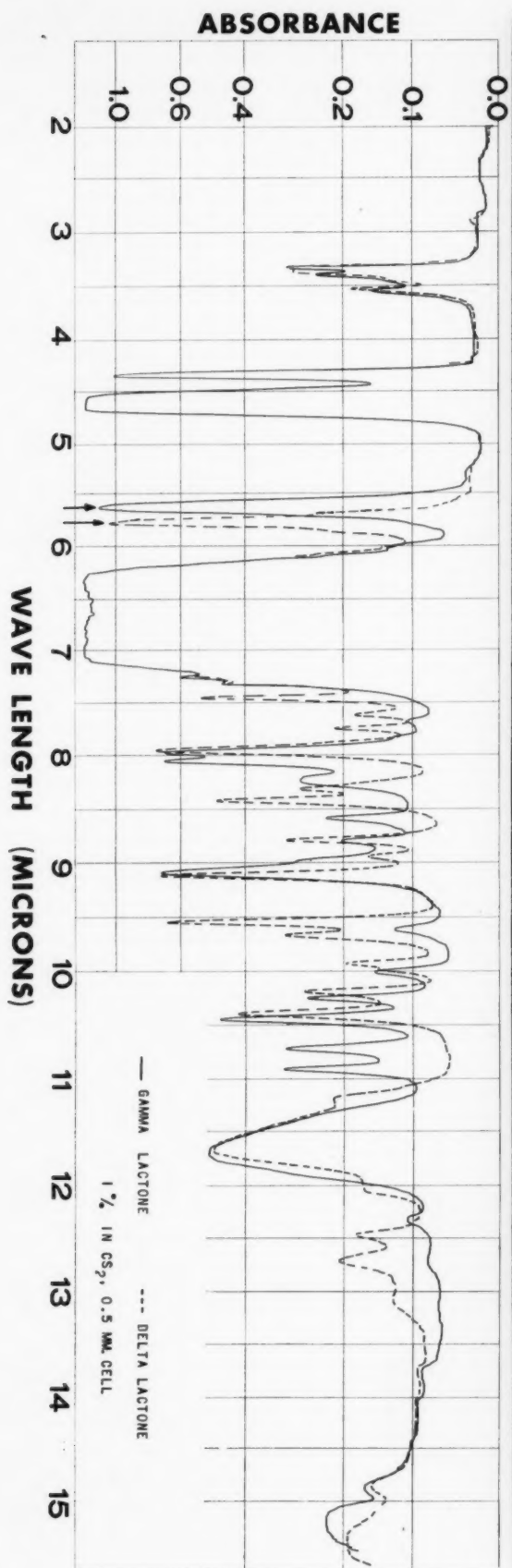
(b) *Commercial*. By this is meant retail establishments including eating and drinking places covered in the Census of Retail Trade (U.S. Department of Commerce, Bureau of the Census). In this case again we favor the use of a general average figure for all types rather than the specific, into which it is broken down. If you do not wish to include filling stations, other types of stores because they are not your potential customers, then these figures can be excluded at the cost of some extra work.

Another reason for using these general figures is that they are easily available and are kept up to date between Census Reports. They can be found in "Consumer Markets," of Standard Rate and Data Service Inc. of Evanston, Illinois, published in their monthly newspaper, radio and TV rates and data books or in the annual "Survey of Buying Power" (published by Bill Brothers, New York City) both broken down into a percentage of the national total by county and important cities. The former fur-

(Turn to Page 195)

Complete Underwood Samas card punch, file and sort set-up.





Stability

THE infrared spectra of all allethrin samples recorded during the tests closely resembled that of the original insecticide. However, the materials heated at 105°, 75° and stored at room temperature evidenced a distinct shoulder absorption at 5.64 microns (Fig. 5). In these instances, acid content tended to level off with time instead of increasing in proportion to ester deterioration. Chrysanthemum monocarboxylic acid was heated at 105° for one month and, at the end of this time, showed 2.0% loss in purity in addition to exhibiting an appreciable shoulder at 5.64 microns. After refluxing the acid for 17 hours (Fig. 6), the resulting pale yellow liquid was suspended in water, made alkaline, extracted with diethyl ether, and fractionated. Two cuts were taken at 130-2° at 11 mm.; a semisolid forerun and a main solid fraction. The latter was recrystallized from ethanol (M.P. 60-61°) and displayed an intense 5.64 micron absorption (Fig. 7). The location of this band, coupled with the neutrality of the compound, indicated it to be a gamma lactone. Its infrared spectrum, ele-

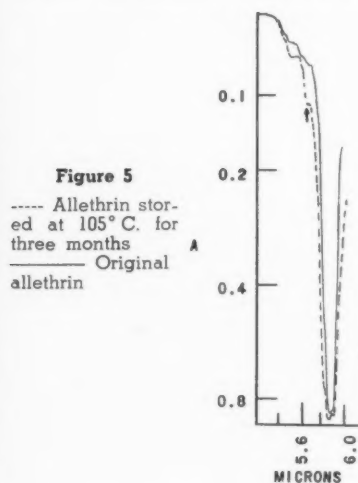


Figure 5
 ----- Allethrin stored at 105°C. for three months
 ——— Original allethrin

of Allethrin vs. Pyrethrins — Part II

By Dr. Stanley K. Freeman* Benzol Products Co., Newark, N. J.

mental analysis, and molecular weight proved to be identical with the gamma lactone (pyrocin) previously prepared by Crombie et al (11) from chrysanthemum monocarboxylic acid. Hydrolysis of the lactone yielded an hydroxy acid exhibiting a typical hydroxyl band at 3.0 microns. An equivalent weight of 190 was found by alkaline hydrolysis which compares favorably with the theoretical value of 188. The hydroxy acid completely lactonized within one hour at 105°. The above-mentioned semisolid forerun was cooled to 0° for 48 hours and filtered. This process was repeated twice and the final filtrate showed a strong absorption at 5.86 microns and a weaker one at 5.64 microns. After chilling and filtering again, the intensity of the former band increased while that of the latter decreased. The infrared spectrum was strikingly similar to that of a 70/30 mixture of delta and gamma lactones, respectively. Purified delta lactone was prepared from the cis acid (11) and its spectrum is recorded in Fig. 7. The conversion of chrysanthemum monocarboxylic acid to the two lactones is shown in Fig. 8.

Allethrin heated for three months at 105°C. contained 1.5%

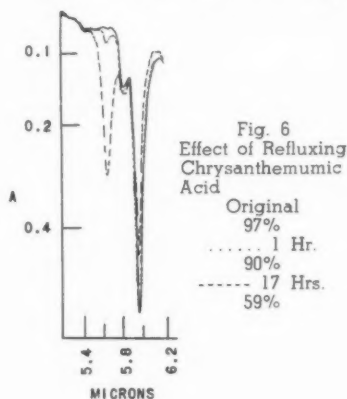
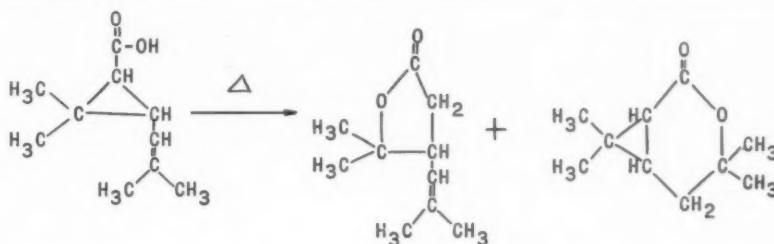


Fig. 6
Effect of Refluxing
Chrysanthemumic
Acid
Original
97%
..... 1 Hr.
90%
----- 17 Hrs.
59%



PYROCIN

Figure 8

of the gamma lactone and 2% of this lactone was found in the sample stored at room temperature for 5 years. These values were obtained by carrying out infrared analyses using the 5.64 micron band (Beer's Law was followed in the concentration range between 0 and 10%). In both instances the amount of gamma lactone found amounted to about

one half of the acid quantity that was unaccounted for on the basis of straightforward hydrolysis of the insecticide.

The ultraviolet absorption spectra of heated and room temperature stored allethrin are compared with the original material in Fig. 9. In the case of the heated insecticide, there occurs a definite reduction in the intensity of the $\pi \rightarrow \pi^*$ band located at 227 mu and, in addition,

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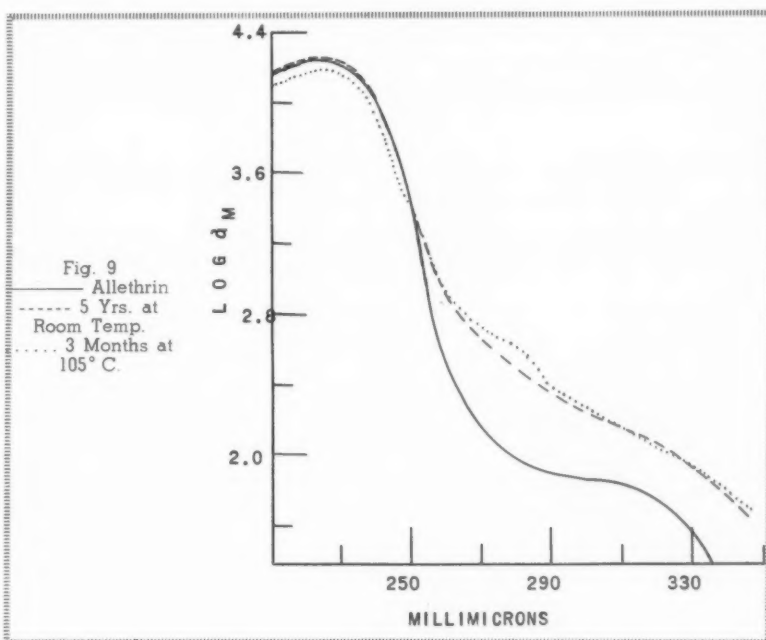


Fig. 9
Allethrin
----- 5 Yrs. at
Room Temp.
..... 3 Months at
105° C.

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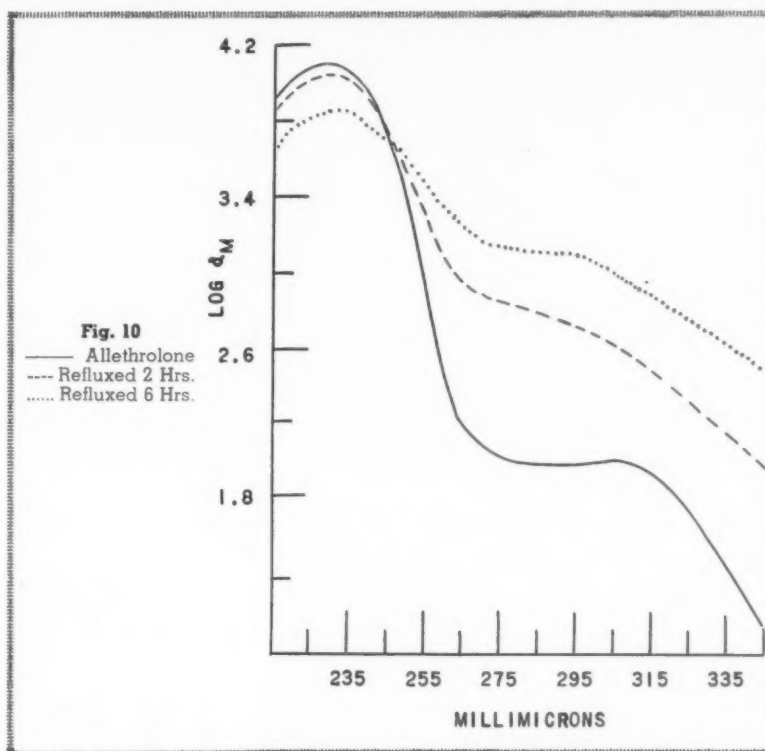
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a shoulder appears at 275-285 mu.

Unexpectedly, the absorptivity of the 227 mu band for the room temperature material was more intense than that of the original insecticide by a small but perceptible amount. The lower intensity of this absorption in the case of the 105°C. heated material can be correlated with the decrease in purity reported here by both hydrogenolysis and infrared spectrophotometric analytical methods.

The appearance of the 275-85 mu absorption observed in the spectrum of the heated insecticide might be due to a product derived from allethrolone, for there is 2.8% less of the keto alcohol present than expected from simple ester hydrolysis. Upon refluxing allethrolone for several hours (Fig. 10) some decomposition of the cyclopentenolone ring occurred as evidenced by the decrease in the 231 mu band intensity. In addition, a strong absorption appeared in the 275-85 micron region. Dehydration of the keto alcohol would yield 3-methyl-2-allyl-cyclopentadienyl-2,4-one, which is an alpha-beta, gamma-delta, unsaturated ketone. Compounds of this type display intense absorption at 270-80 mu and attempts were made to prepare this substance by heating allethrolone with potassium bisulphate, boric acid and treating it with phosphorus pentoxide at 30°C. However, the sought for compound was not obtained but, instead, there resulted small amounts of dimerized allethrolone (12) which was probably formed from the unstable intermediate dehydro compound. Maxima in the infrared spectrum at 5.65, 5.92 and 6.12 microns (13) confirmed the presence of dimerized product. This substance could not be the impurity observed in the case of the heated allethrolone, for the dimer exhibits ultraviolet maxima at 239 mu ($\log a_m=3.97$) and 310 mu ($\log a_m=2.14$) (28). However, the product resulting from decarbonylation of this dimer displays a strong absorption at 285 mu superimposed on a broad 260-310 mu band and could be conceivably present in the heated allethrin sample.



Heating allethrin at 105°C. is apparently not a simple accelerated aging of the insecticide. This is borne out by comparison of the ultraviolet absorption spectra, formation of some Deobase insoluble material only in the case of the room temperature stored material, and large discrepancy between chemical and bioassay results (Table 6). The

disparity of 22% in assay decrease between the chemical and bioassay (one day mortality) methods may be partially explained by the fact that the petroleum ether insoluble material (ca 20%) occurring in allethrin when stored for five years interferes with the hydrogenolysis (14) chromatographic (15) and in-

(Turn to Page 166)

Table 6. Comparison Between Stabilities of Allethrin and the Pyrethrins

Concentration	Temp.	Storage Time (Days)	% Assay Decrease		
			Chemical ^a	Bioassay	
				10 Min. Knockdown	1 Day Mortality
100% Pyns.	2°	170	—	—	0 ^b
93.5% Alln.	5	1800	2.6	—	—
100% Pyns.	Room	170	—	—	44 ^b
93.5% Alln.	Room	1800	14.7	6 ^c	37 ^c
100% Pyns.	40	170	—	—	86 ^b
93.5% Alln.	75	200	2.6	—	—
93.5% Alln.	105	190	11.1	—	11 ^c
20% Pyns.	Room	170	—	—	20 ^b
20% Alln.	Room	200	1	—	—
21% Pyns.	63	0.75	4.7 ^d	—	—
21% Pyns.	95	0.75	51 ^d	—	—
20% Alln.	105	100	4.0	—	—

^a Infrared and Hydrogenolysis Methods

^b 2 mg./ml. (28)

^c 1 mg./ml.

^d Seil Method (30)



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Quaternary ammonium type Detergent - Sanitizers

By **Harry H. Borowsky***

Onyx Oil & Chemical Co.,
Jersey City, N. J.

IN the past few years considerable interest has been focused on products which provide cleaning and sanitizing action in a single operation. This was motivated by a strong desire to simplify and improve upon the conventional methods of cleaning and sanitizing separately, with intermittent rinsing and also to reduce operational and labor costs. These dual purpose products have been designated as detergent-sanitizers, which by definition possess the properties of cleaning and reducing the number of bacteria to a safe level, as established by either local or other regulatory offices. The idea of combining a germicide with a detergent is not novel. It had its beginning at the turn of the century. Since that time, germicides have been studied for inclusion in soap, but of late, the synthetic surface active agents have been substituted because of their expanded versatility.

About the time of World War II, there appeared the first of a relatively new type of compound, classified as quaternary ammonium surface active agents. These showed promise as germicides through a most extensive and elaborate laboratory evaluation program conducted by industry and in cooperation with several universities.

The original compound was the familiar alkyl dimethyl benzyl ammonium chloride, which is still being marketed under the Onyx trade name, "BTC." When one considers that these new compounds

are odorless, colorless, completely water-soluble, non-toxic, non-irritating and relatively non-corrosive to metals, it is obvious why they created so much interest. These are clearly defined attributes of an ideal germicide. Nonetheless, certain limitations on their effective usage were established at an early date, particularly with regard to their use in hard waters. At this point, it should be pointed out that we refer to a general class of compounds, rather than to an individual quaternary ammonium salt. Not unlike soap, the efficiency of these products is impaired in hard water, due to the presence of calcium and magnesium ions. We believe that, were it not for this objectionable feature, coupled with the fact that there are many compounds on the market with a very low order of efficiency, the quaternaries would have been given official recognition many years ago. Very soon, however, we anticipate that the situation will be resolved and that specific quaternaries will be accepted simply on a performance basis.

IN the early years of this development, it became apparent that since quaternaries are cationic they could be combined with compatible non-ionic surface active agents to produce a detergent-sanitizer. At first, these products were in liquid form. However, because of breakage of bottles and freezing in transit, together with the difficulty of incorporating other ingredients into the formulation, powdered products became more popular. Today, the

majority of these products are of the powdered type. Detergent-sanitizers have become established articles of commerce. We have estimated that the annual production is upwards of 3,000,000 pounds.

Chemical Structure

THE term "quaternary ammonium" represents a group of compounds that may be derived from ammonium hydroxide, in which the four hydrogens are replaced with four organic radicals and the hydroxyl group either remaining or being replaced by a halide or some other anion. At least one of the organic radicals must be a high molecular weight carbon chain or hydrophobe with at least eight carbon atoms. The many different organic radicals, permit an unlimited number of combinations. Thus, a variety of compounds is possible, differing greatly in chemical constitution. The portion of the molecule containing nitrogen with its organic substituents is positively charged and referred to as a "cation." Since it is the active portion of the molecule, these compounds are also classified as cation-active or cationic surface active agents.

Generally, surface active agents possess both wetting and detergent action. Most quaternary compounds and especially those that have germicidal properties have relatively good wetting action but poor deterative qualities. Consequently, an agent which does have good detergent action must be combined with the quaternary in preparing an effective detergent-sanitizer. Soap and anionic surface active agents

*Paper presented at the 42nd annual meeting, Chemical Specialties Manufacturers Assn., New York, Dec. 6, 1955.

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are good detergents but are incompatible with quaternary ammonium salts. The non-ionic surface active agents are therefore recommended for this purpose, particularly the ether-type products. In the past decade, they have earned a reputation as detergents with unusual wetting, emulsifying, penetrating and dispersing characteristics.

We have found that our "Neutronyx 600" is very suitable for compounding detergent-sanitizers. It is an alkyl phenol polyethylene glycol ether. Similar products are available from several manufacturers. They are extremely stable in the presence of highly alkaline salts and most electrolytes, even over long storage periods under the most severe conditions. Not only are they compatible with quaternaries but also serve to bring into compatibility certain alkaline salts otherwise incompatible with quaternaries. They also have a stabilizing effect on the quaternaries in the presence of certain inhibiting substances.

MOST quaternary ammonium compounds offered to the trade during the past several years consist mainly of variations of the substituents attached to the nitrogen nucleus. All, of course, are germicides, but it is logical to expect the quaternary ammonium germicides to exhibit significant variations among commercial preparations with respect to their bactericidal properties. The manufacturers' bacteriological data is usually reliable, except that it applies for the most part to the performance of the pure compound. Formulations of detergent-sanitizers should always be evaluated by some approved test method to detect any evidence of incompatibility and to assure maximum germicidal performance. The recommended procedures are the Weber-Black Percentage Survival Test, the Stuart Ring-Carrier Use-Dilution Test and the Modified Cantor-Shelanski Capacity Test. The phenol coefficient method is also a very valuable tool but is not in every instance a reliable measure of the sanitizing value of quaternaries.

It is important to point out that the official or approved methods for testing germicides will measure disinfection rather than sanitization. Disinfection requirements are much more rigid and severe. Any test method should reflect the effectiveness of a product under use conditions.

Most of the factors that affect the activity of germicides have been studied with those products on the market. They include the effect of different types of organisms, speed and mode of action, concentration, pH and temperature of use solutions and the effect of inhibiting substances such as organic matter and hard water.

Substances that are germicidal must be adsorbed on or absorbed into the bacterial cell before they bring inhibition of growth or death to the organism. With quaternaries, the speed and extent of germicidal activity may be due to its better wetting and penetration and overall lowering of the surface tension of the solution. Most quaternaries at 0.02% concentration or 200 ppm will destroy within five minutes over 90% of the vegetative cells of organisms commonly encountered in food and dairy plants. Gram-positive organisms such as *Micrococcus pyogenes aureus* appear to be very susceptible; gram-negative, however, are more resistant. Thermophilic organisms, those withstanding pasteurization temperatures, are destroyed by relatively low concentrations and exposure periods. Gram-positive spore-forming types may be inhibited by low concentrations but the bacterial spores are more resistant and require generally higher concentrations and longer exposure periods.

Not unlike other germicides, temperature of solution is an important factor in germicidal activity. It has been well-established that an increase in temperature raises the bactericidal efficiency of most germicides. A typical effect with quaternaries is the fact that approximately one-half as much material is required to produce a 30 second kill at 50°C as is needed at normal room

temperature. This represents an important factor in suggesting directions for using these products.

Effect of pH

THE effect of pH on the bactericidal efficiency of germicides is another important factor. Most results with quaternaries show an increasing germicidal activity with increasing pH. Generally, this is very pronounced above pH 9.0 and of lesser magnitude between 7 and 9. Quaternaries exert little or no buffering effect on water and tend to approach the pH of the water used to prepare the solution. This indicates that detergent-sanitizer products should be formulated with alkaline salts for maximum efficiency.

Quaternaries are more stable in the presence of organic matter than most other type germicides. This explains their accepted usage in detergent-sanitizers. They will emulsify fats and greases, remove surface soil, loosen and remove hidden dirt and films in cracks and crevices—and produce an effective and quick kill on bacteria. In laboratory tests with 10% serum, complete inhibition of germicidal activity was not indicated. It is important to note that the quaternaries in distilled water or in soft water exert a most remarkable germicidal activity. However, in hard water, this activity may be lessened considerably with certain compounds particularly. Potentially, pH, organic matter and the mineral salts present in the water might be the causative or inhibiting substances. Organic matter is negligible and pH is adjustable without too much difficulty. One or more of the various mineral salts, that is, calcium, magnesium and iron, have been found to have an adverse effect on the germicidal efficiency of the quaternaries. However, there is wide variation among commercial quaternaries in this respect. Under uniform conditions of testing at 200 ppm quaternary concentration, some products exhibit a marked reduction in killing activity in waters of 50-75 ppm hardness. With such products as "Onyx BTC," this effect is not



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evident except in waters above 250 ppm hardness. At any rate, this inhibitory action may be overcome by using certain sequestering agents that are compatible with quaternaries in combination with non-ionic, such as the sodium salt of ethylene diamine tetra acetic acid, tetra sodium pyro phosphate, sodium tripolyphosphate, etc. Of course, the amount required to sequester the water to a minimum hardness concentration will vary with different quaternary compounds. It is interesting to note that 85% of natural hard waters in the United States are under 250 ppm hardness.

Formulation

WE now reach the point of this discussion concerned with the formulation and methods of preparation of detergent-sanitizers. The basic ingredients, of course, are the quaternary and the non-ionic. Generally, the ratio of both materials is 1:1, with perhaps an excess of non-ionic but rarely more than 2:1. In order to obtain an optimum pH, alkaline salts should be added. Materials such as sodium carbonate, bicarbonate or sesquicarbonate are suitable. The carbonate content should be carefully controlled to avoid clouding of use solutions in hard water and at elevated temperatures. To overcome any inhibitory effects of hard water, sequestering agents should be used. From the standpoint of economy, the phosphates are most desirable. They serve a triple-purpose: (1) sequestering hard water ions, (2) adjusting pH to the point of maximum efficiency and (3) building detergent characteristics of the product.

Most available non-ionic materials are liquids in pure form. They are generally 100% active. They are dissolved easily in preparing liquid products but are difficult to get into powdered formulations above a certain concentration, usually 8-10%. The pure quaternary salts may be in liquid or powder form although most commonly used materials are pastes which are extremely difficult to handle. Consequently, most quaternaries are supplied as

50% aqueous solutions. As we mentioned previously, these concentrated solutions are virtually odorless and colorless. Many compounders deem it advisable to add coloring and perfume to avoid resemblance to water. The choice of colors is limited, due to the cationic nature of quaternaries. Most colors become very sensitive and subject to change of shade and some fade out completely, particularly blues. Because of the powerful wetting and penetrating properties, liquid products cannot be packaged in ordinary metal containers. In use solutions, however, there is little if any corrosive action on metals—at least not more than water used alone. This effect may be minimized with a straight quaternary solution by using sodium nitrite, but unfortunately the same effect cannot be obtained with a detergent-sanitizer liquid. Consequently, liquid products are packaged in specially lined metal containers, plastic or glass. Powdered products may be packaged in any type of moisture-proof container. Quaternaries are not materially affected by heat or light, so that no special precautions are necessary for packaging, shipping or storage.

Liquid Products

LIQUID products are prepared without any difficulty except that distilled or deionized water should be used. The amount of dissolved salts, however, is usually limited by their respective solubilities. Most liquid products on the market contain 10% active quaternary and 10-20% non-ionic. In such a solution it is impossible to dissolve more than 3% phosphate. In liquid products, therefore, it is essential that the quaternary be selected for most efficient performance under hard water conditions.

Powder Products

POWDERED products are prepared by either one of two procedures, depending upon the concentration of the active ingredients. Because of large amounts of phosphate present as potential detergent builder, the ratio of quaternary to

non-ionic should be 1:1. A 5% active quaternary and 5% non-ionic powder may be prepared simply by adding the individual liquids either separately or combined, with a spray or drip arrangement onto the mixed salts in any ordinary mixing or blending equipment. With this procedure, it is possible to prepare products containing as much as 10% quaternary but not more than 5% non-ionic. Any increase in the non-ionic concentration will result in a product which is literally "wet", not free-flowing and subject to caking during storage. However, it is possible to prepare higher concentrates. This is by urea-cementation, in a hot-melt process. It is a costly operation and requires specialized equipment.

A typical formula of a detergent-sanitizer would be as follows:

Onyx BTC-50%	10 parts
Neutronyx 600	5 "
TSPP	50 "
Soda ash	3 "
Sodium bicarbonate	31 "
Color and odor	<1 "

The products as those described may be manufactured at a chemical cost in the order of 8-10¢ per pound for the liquid containing 5% quaternary; 10½-15¢ per pound for the powder containing the same amount of quaternary. The price of the package for the powders is negligible, although more significant for liquids. All in all, the costs are not excessive for a product providing both cleaning and sanitizing.

DETERGENT-sanitizer blends offer considerable promise and are attracting much attention. They have many present and many more potential uses. They are outstanding in that they have a residual action on a treated surface. This is essential in practical operations. Their complete lack of odor and the fact that they are non-irritating and non-toxic in use dilutions, are greatly in their favor especially in the dairy, creamery and food handling industries and for treating dishes and glassware in public eating and drinking establishments. This fea-

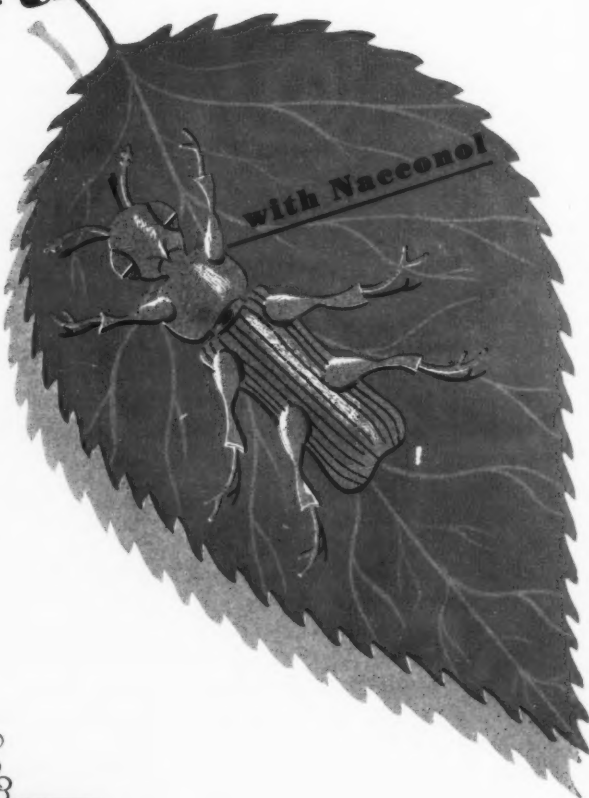
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Paste Cream Shampoos

(From Page 49)

ment is needed to make cold packing an efficient operation.

Cooling time likewise has a pronounced effect on consistency. Figure 4 shows that quick cooling to 100°F. produces a more uniform product than slow cooling. As the cooling time is reduced from six and one-half hours to one-quarter hour, product consistency improves greatly.

Agitation during cooling is also quite desirable, for it speeds up the cooling rate and maintains a uniform temperature throughout the mass. In addition, it improves smoothness and causes break-up of the larger crystals and thus softens the product. However, this type of softness is only temporary because in a short time the crystals will reform and become large again.

In order to be able to cool quickly and to pack at a low enough temperature, it can be seen that processing equipment might be a limiting factor especially where the batch process is employed. Continuous freezer type equipment can very often be justified because of the more uniform product and shorter processing time it provides.

Having cooled and packed under suitable conditions, we find that much influence can still be exerted during the so-called tempering period which covers at least the first full day of storage after packing. It might be argued that as a single effect, tempering is even more important than cooling time or end processing temperature.

By the time tempering begins, crystal growth is already underway. During tempering this growth is substantially completed. Figure 5 shows the effect of various tempering temperatures on subsequent consistency behavior. After packing, these samples were stored for one week at the tempering temperature, then one day at the 70°F. penetration temperature and penetrated. Again the flattest curve shows the greatest uniformity. Tem-

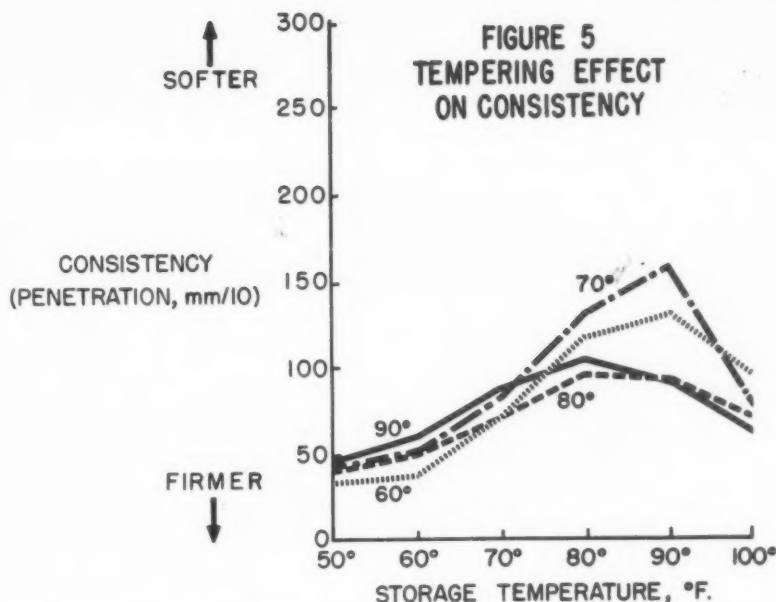


FIGURE 5
TEMPERING EFFECT
ON CONSISTENCY

pering at 80°F. seems to give the optimum performance, although 90°F. also shows up well. As mentioned earlier, 80°F. was used as the standard tempering temperature in all these studies. Here you see the justification for it. Both 60° and 70°F. apparently have a chilling effect which leads to the formation of the fine platy crystals and produces the glossy type of soft product.

It may be noted that on this graph as on the others, the storage temperature which seems to produce the peak variations in consistency is about 90°F.

Formulation Changes

THE proper balancing of the various constituents in the cream shampoo formula also contributes to desirable consistency.

Sodium stearate is essentially a firming agent. Figure 6

Figure 6. Sodium Stearate
Effect on Consistency

Sodium Stearate %	Consistency 70° F. Penetration (mm/10)	
	Avg.	Range
6.7	81	61-103
7.0	69	44-110
7.3	65	46-90
8.2	55	39-95

shows its effect. These samples were tempered at 80°F., the optimum, for one day, then moved directly to 70°F. penetration temperature for one day and penetrated. It can be readily seen that as sodium stearate increases, penetrometer readings decrease and a firmer product is obtained. Notice also the range of readings for a series of seventy-five samples at each level of sodium stearate.

Free fatty acid (stearic acid) is primarily a softening agent. Figure 7 shows that a flat curve indicating a consistent product can be obtained with 0.5 to 1% free fatty acid. As the level is increased to 2%, appreciable softening occurs after shortage especially at 90°F.

Within limits, added electrolyte (sodium sulfate) will increase product firmness. However, too much can give "salting out" effects and cause distinct softening. Up to 3% may be used satisfactorily, with 1 to 2% being the usual range.

Lanolin contributes to product smoothness and texture. It shows some tendency to soften because of its solubilizing effect on the crystal solids. Up to 2% can be used effectively, with the usual range being 0.5 to 1%.

Perfume can have consider-

News about

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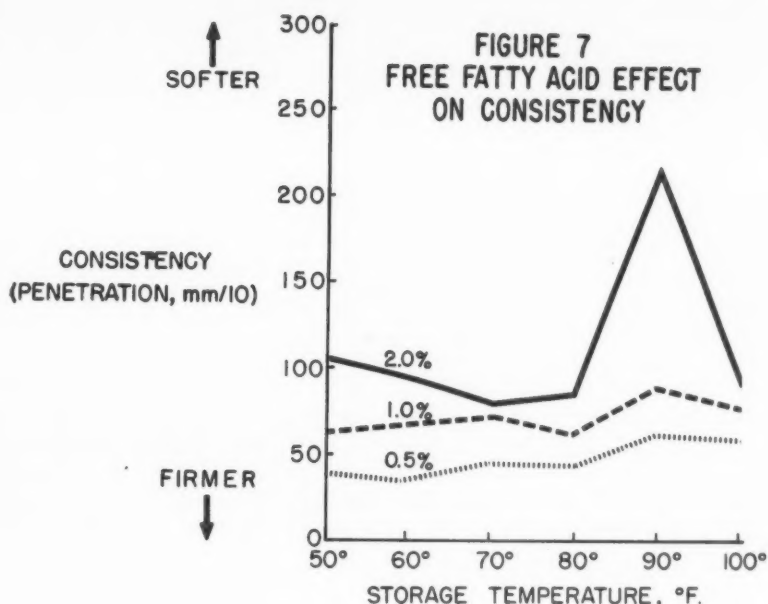
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able influence in softening paste cream formulations. The degree of softening will vary both with the type and amount of perfume used. Since the effect of perfume can be so pronounced, this constituent should be selected early in formulation work.

Preservative, dye and other minor constituents are used in such small amounts that their effect on consistency does not appear significant. Hence, they were not included in these studies.

Summary and Conclusions

PROPER control of early crystal growth has pronounced effects on the consistency of paste cream shampoo in storage. Too rapid growth takes place if the product is chilled soon after packing and results in a thin glossy paste containing fine short crystals. Too slow growth takes place in very hot weather and leads to a soft, curdly product with considerable free liquor. Fortunately it is not difficult to obtain the desired tangle of elongated crystals. The following final processing techniques are important: (1) A low end processing or packing temperature — about 85°F. is preferred. Low pressure filling equipment is needed to maintain good packing rates. (2) Short

cooling time. In order to reduce cooling time to as little as one-quarter hour, freezer type equipment can often be justified. (3) A tempering temperature of about 80°F. during the first day after packing when crystal formation is substantially completed.

Formulation changes likewise contribute to product consistency. The directional effects of the constituents studied follow:

1. Sodium stearate—firms
2. Free fatty acid—softens
3. Electrolyte — firms, within limits
4. Lanolin — gives smooth texture, tends to soften
5. Perfume—softens, sometimes greatly.

The author is indebted to J. R. Story and others in the Research and Development Department whose work has contributed much of the basic information for this paper.

Atlas Scholarships

Atlas Powder Co., Wilmington, Del., will award eight \$1,000 college scholarships again this year, it was announced in February by Ralph K. Gottshall, president. The grants will go to students who will be seniors during the 1956-57 college year, majoring in chemistry or

any branch in engineering. This is the third year the program has been in effect. The eight successful candidates will also have a chance to gain practical experience by summer work in one of Atlas' plants and research laboratories or with one of the firm's technical field representatives. The program, in which 38 colleges and universities have been invited to participate, will be administered by the firm's committee on scholarships, headed by Thomas Kennedy, director of industrial and public relations.

Snyder to Mobay

M. George Snyder has been appointed advertising manager of Mobay Chemical Co., St. Louis, Mo., it was announced in February by J. D. Mahoney, general manager of sales. Prior to his recent appointment Mr. Snyder served as product promotion manager with the plastics division of Monsanto Chemical Co., American parent company of Mobay.

Shell Plans MEK Plant

Shell Chemical Corp., New York, will start construction of a new methyl ethyl ketone plant at Norco, La., according to a recent announcement by R. C. McCurdy, president of Shell. The fourth such plant constructed by Shell, it will have a planned capacity of 40,000,000 pounds per year and is scheduled for completion in early 1957.

Detergent-Sanitizers

(From Page 161)

ture is also of utmost importance where an operator's hands are constantly in and out of solution. They are not miracle products. They do not eliminate the need for good old-fashioned "elbow-grease" and good housekeeping practices. They are merely another useful and inexpensive tool for the experienced operator. The quaternary ammonium compounds are a step in the direction of progress for securing better results with lower operating costs, labor and time.

Allethrin vs. Pyrethrins

(From Page 153)

frared (16) analytical procedures. This substance is similar to that isolated from the petroleum ether insoluble portion of ultraviolet light irradiated allethrin (*vide infra*) and analyzes about 45% as allethrin.

There is only a 6% reduction in the ten minute knockdown effect after five year storage of allethrin which is considerably below the value obtained by chemical methods. The work of Hartzell and Schreiber (17) showed that by decreasing the pyrethrin concentration of a Deobase solution from 1 mg./ml. to 0.4 mg./ml. there is a mortality drop of one third but no appreciable change in ten minute knockdown action. Moore has found a similar correlation for allethrin (18). It appears that chemical analysis values of allethrin and the pyrethrins, while in fair agreement with bioassay mortality results, do not accurately reflect knockdown effect for low concentrations of active insecticide.

It is apparent by comparing the heat stability of allethrin and pyrethrins (Table 6) that allethrin is much more stable than the pyrethrins in 20% Deobase solution as well as in the relatively pure state.

Toxicity studies on the pyrethrins (19) clearly indicate that the most critical feature of the pyrethrin structure is the degree of unsaturation of the keto alcohol side chain. Martin (8) remarks that, for exposure of pyrethrin dust to air and sunlight, the possibility of polymerization cannot be ruled out.

West reports (20) that "the petroleum ether insoluble material formed when the pyrethrins are stored in the dark for several months are probably polymerized products involving the cyclopentadienyl side chain". This statement was based on the fact that appreciable absorption of light was observable (in alcohol solution) at the absorption maximum characteristic of the pyrethrins. Campbell and Mitchell note that polymerization is confined to the keto alcohol portion

of the esters and that the acids are not involved (3). The action of ultraviolet light was found not to be a function of humidity or oxygen, and the decomposition of pyrethrin in oil films in the absence of light is reported to be independent of temperature. (1).

For this investigation a 20% dewaxed, antioxidant free pyrethrin concentrate* was purified (21) and stored at 105°C. for 18 hours in a sealed vial. The material was extracted with petroleum ether and the semi-solid residue dried in vacuo and ground to a fine, pale yellow powder. Its infrared and ultraviolet absorption spectra were identical with those of ultraviolet irradiated pyrethrin which proved to be dimerized pyrethrin (*vide infra*).

When allethrin was heated for 3 months at 105°C. a negligible amount of petroleum ether insoluble residue was observed. The five year stored insecticide contained about 20% of petroleum ether insoluble substance.

Upon irradiating purified pyrethrins with ultraviolet light at 40° for 10 hours, a 60% yield of a white, petroleum ether insoluble solid was obtained melting between 65-73°. The material displayed a strong absorption band centered at 228 μ , characteristic of the cyclopentenone moiety. The infrared spectrum proved more enlightening (Fig. 11), for the 11.07 micron band present in the original material nearly disappeared after ultraviolet treatment. The literature reports that the strong out-of-plane deformational modes of vibration of the olefinic hydrogen atoms in the $-RCH=CH_2$ grouping occur in the wavelength range 10.9 to 11.1 microns and 10.0 to 10.2 microns (22, 23). In order to make certain that the terminal methylene group in the cyclopentadienyl side chain of pyrethrins I and II absorbs in this region of the infrared, the spectrum of allethrolone was compared with its hydrogenated homologue (Fig. 12). The intense 10.96 micron absorption disappeared when

*Courtesy McLaughlin Gormley King Co., Minneapolis, Minn.

the side chain became saturated, and was replaced by a weaker band at 10.86 microns which is attributable to the normal propyl moiety. In addition, the shoulder at 10.1 microns was eliminated after reduction. These data confirm the statements found in the literature and convincingly show that the 11.07 micron absorption band observed in the spectrum of the untreated pyrethrins and absent in the ultraviolet irradiated pyrethrins is due to the terminal methylene group of the pentadienyl side chain. However, the absorption at 10.1 microns was still present, albeit about one half as intense as that of the original. It is possible that there is another vibrational mode present in the pyrethrin molecule occurring at this wavelength, thus explaining the absorbance reduction but not complete elimination of the band. The appearance of a shoulder absorption at 10.26 microns might be due to the trans $RCH=CHR'$ group.

The effect of ultraviolet light upon the chrysanthemumic acid portion of the pyrethrin molecule would be expected to occur at the unsaturated center. The isopropylidene group ($-CH=CMe_2$) absorbs in the range of 11.9 to 12.5 microns (22, 23). Chrysanthemum monocarboxylic acid exhibited an absorption at 11.72 microns which disappeared upon hydrogenation (Fig. 13). The petroleum ether insoluble material isolated from ultraviolet light and heat treatment of the pyrethrins was identical with that of the untreated insecticide in this region when spectrally examined in a Nujol mull. This observation, in conjunction with the fact that there is no significant alteration in the short wavelength ultraviolet absorption maximum is strong proof that the only change occurring in the pyrethrin molecule took place at the cyclopentenone side chain.

The molecular weight of the petroleum ether insoluble material indicated that dimerization had occurred. The pyrethrin concentrate used in this investigation contained a 1.11 ratio of pyrethrin I and cinerin I over pyrethrin II and cinerin

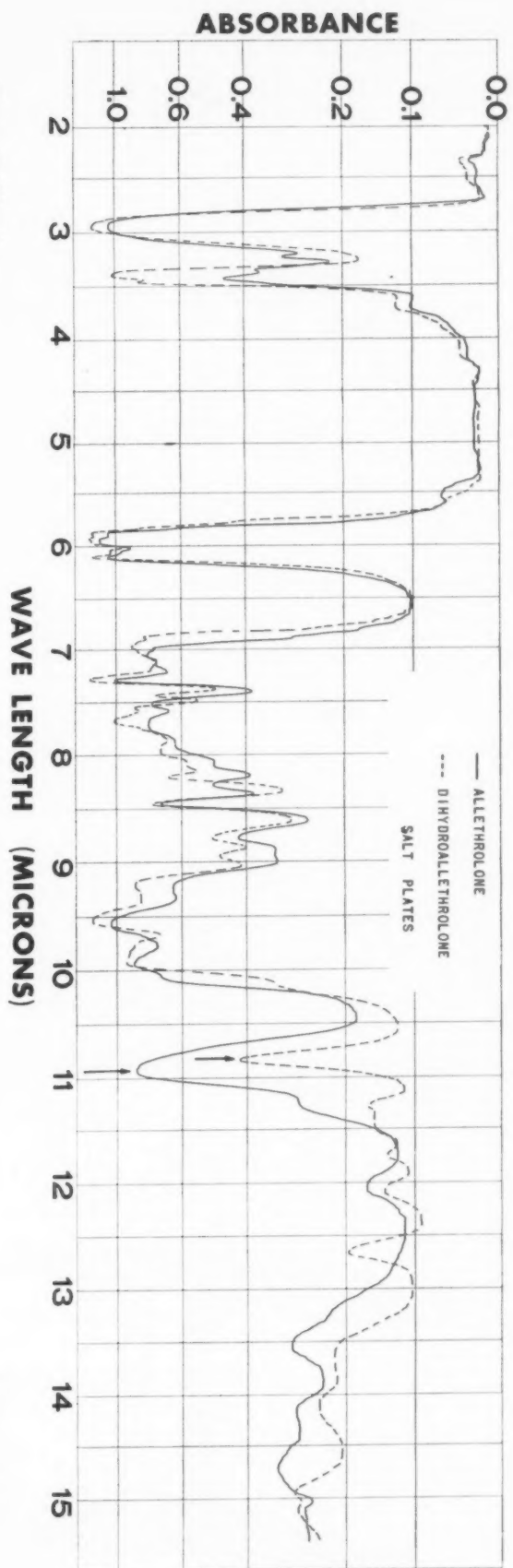


Figure 12 (Above)

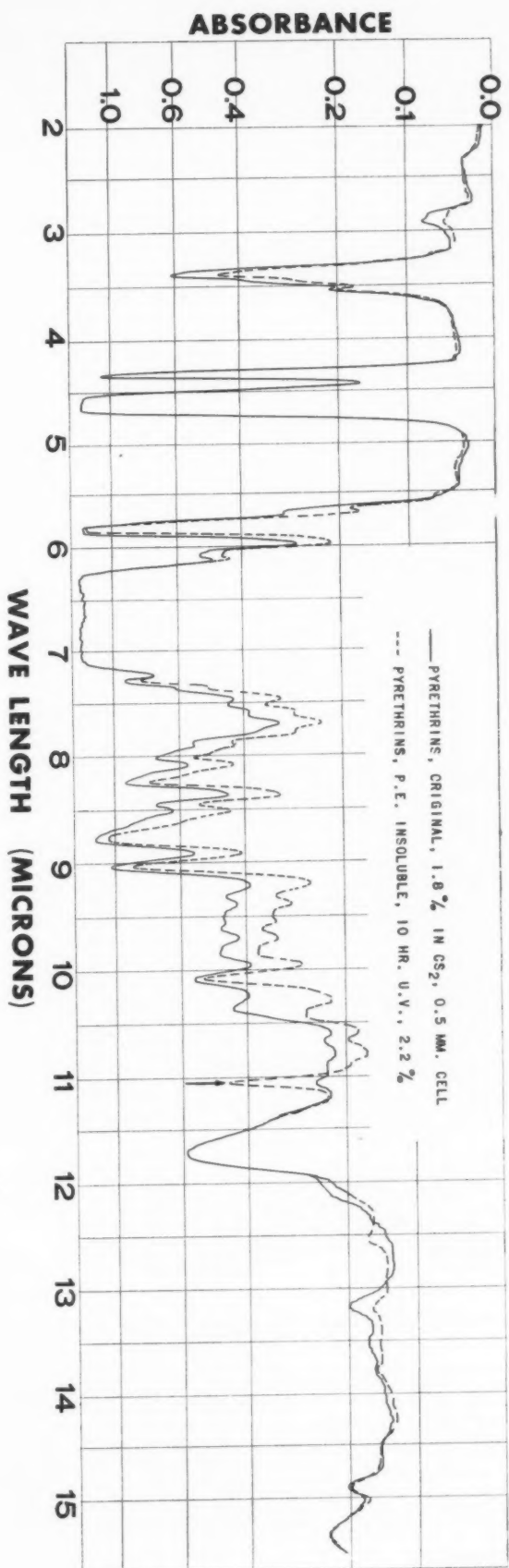


Figure 11 (Below)

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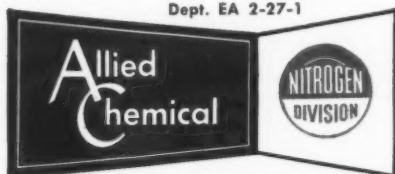


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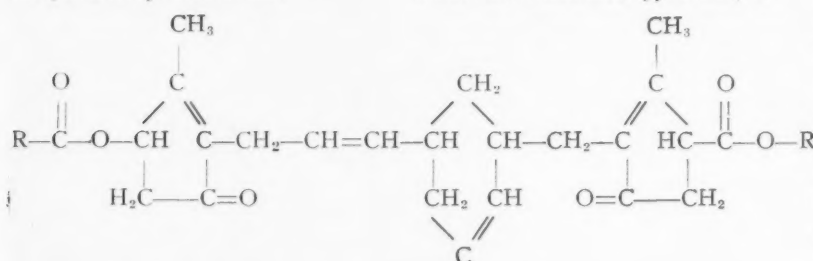
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II. In calculating the theoretical molecular weight of the dimer, it was assumed that the purified pyrethrins consisted of 70% pyrethrins I and II in equal quantities and 30% cinerins I and II in equal quantities (24). A molecular weight of 690 was obtained in this manner. However, in light of the fact that allethrin was unaffected by heat and ultraviolet light in the short time required to dimerize the pyrethrins (*vide infra*) it is very likely that only pyrethrins I and II had dimerized. The theoretical molecular weight in this instance is 696, which is within 3% of the observed value of 676. The dimerized product probably arises as a result of a Diels-Alder condensation involving the pentadienyl side chain:



where R represents chrysanthemum monocarboxylic acid and chrysanthemum dicarboxylic acid monomethyl ester derived from Py I and Py II respectively.

Recently, Brown and Phipers (2) irradiated "normal" pyrethrum extract (25% African), decolorized pyrethrum extract (obtained by shaking 25% extract solution with fullers earth) and 80% pyrethrin concentrate. They conjecture that "there is a two-fold attack upon the pyrethrin molecule when subjected to artificial (tungsten filament) irradiation. One effect is upon the cyclopentenolone system and the degree of attack is unaffected by simple or more complicated purification. The other attack is upon the acid portion of the pyrethrin molecule and this is very rapid in ordinary commercial extracts. The effect, however, is very greatly reduced by a simple decolorisation of the material". This conclusion was based on the comparison between the Seil (25) and

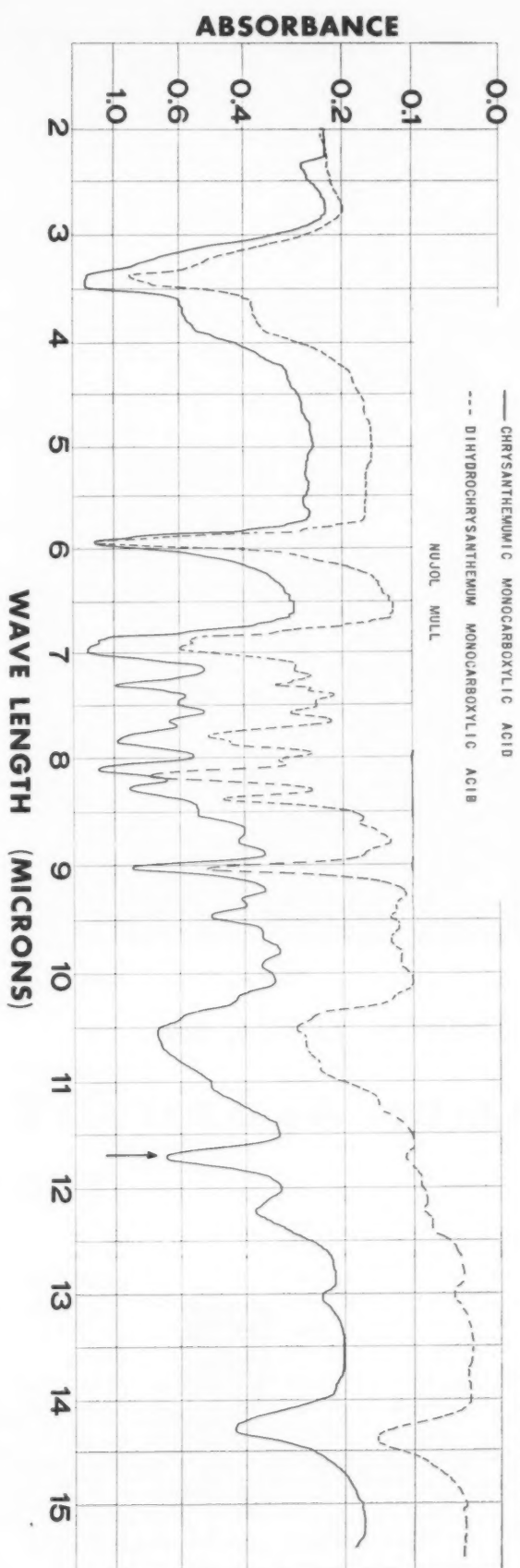
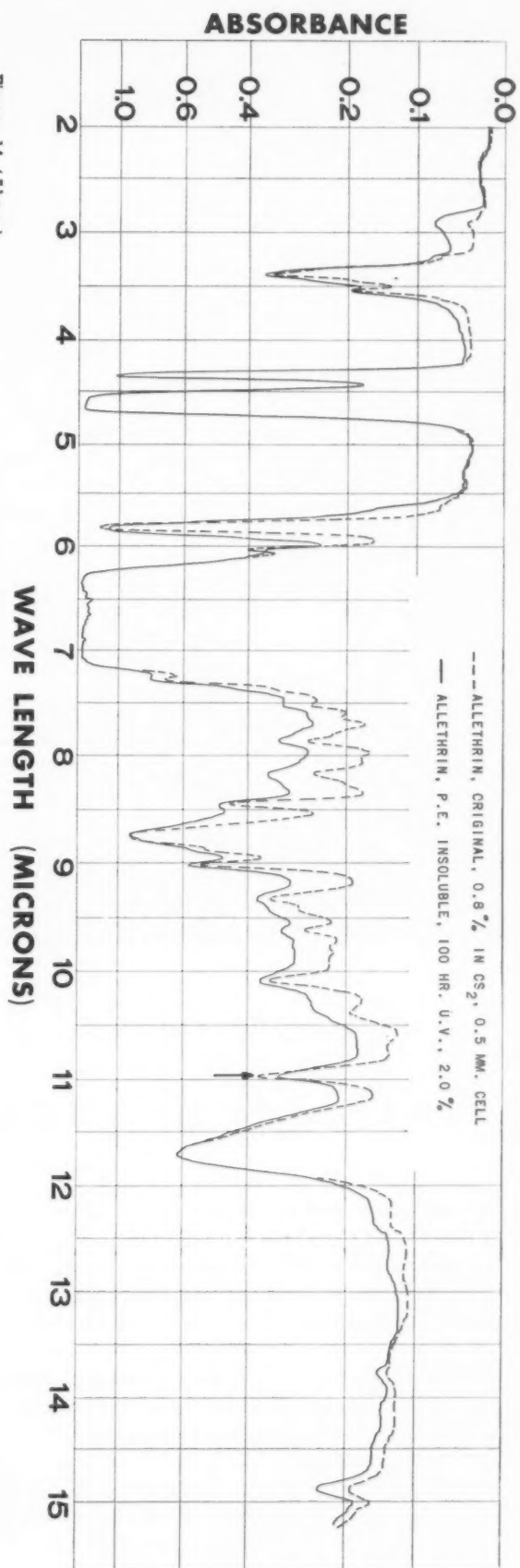
spectrophotometric analytical methods (26) and, in the writer's opinion, should be viewed with suspicion. After three days' irradiation, the ordinary extract showed severe material loss by the Seil procedure as contrasted with a much lower decrease when examined spectrophotometrically. In the instances of the decolorized extract and 80% concentrate, the situation was found to be reversed. This anomalous behavior may be adequately explained on the basis of the solubility of the "polymerized" pyrethrins. The Seil method involves the separation of these polymers prior to analysis but in the Shukis method the extract is dissolved in methanol and the absorbance of the solution recorded. Since the dimerized pyrethrin, as

well as other products, i.e. "polymerized" linoleic ester of the cyclopentenolones (27) etc., are soluble in alcohol, the absorbance measured at 227 mμ., includes not only the pyrethrins but, also, those dimerized and polymerized substances containing the cyclopentenolone ring. "Polymerized" pyrethrins display strong absorption in the neighborhood of 230 mμ microns (20) and dimerized pyrethrin exhibits an intense absorption in this region. The latter also showed a rather strong carbonyl band at 5.87 microns which was 80% as intense as that of the untreated purified pyrethrin concentrate. The apparent loss of pyrethrin content after light treatment as determined spectrophotometrically by Brown and Phipers was nearly the same for the ordinary extract, decolorized extract and pyrethrin concentrate. This does not mean that no deterioration of the pyrethrin molecule had occurred but, rather, that the polymerized and dimerized products resulting

from such treatment were present and were determined along with the unaffected pyrethrins. The Seil method, however, is more discriminatory in this instance, for the petroleum ether insoluble polymers are removed. The presence of "chlorophyll" obviously exerts a profound effect on pyrethrin polymerization for its removal by adsorption on activated fullers earth greatly reduces the deterioration of the insecticide. One is forced to conclude, therefore, that the statement concerning the attack of light upon the acid portion of the pyrethrin molecule is probably incorrect.

When allethrin is subjected to ultraviolet light treatment, a much longer time of exposure is necessary to yield a substantial quantity of petroleum ether insoluble material than was noted above for the pyrethrins. After 100 hours, 65% was isolated; the petroleum ether soluble portion assayed 80% allethrin, 6% allethrolone and 6% chrysanthemumic acid. The pale yellow, tacky substance solidified on cooling (M.P. 64-74°) and assayed 45% by infrared analysis (16) 42% by the hydrogenolysis method (14) and 40% by the chromatographic technique (15). Saponification followed by steam distillation gave about 20% chrysanthemum monocarboxylic acid. Three red dinitrophenylhydrazone bands were observed when the chromatographic analysis was carried out, indicating that the petroleum ether insoluble substance was not pure. Attempts to purify it by chromatography on acid washed alumina, silicic acid and activated carbon did not significantly alter the ultraviolet and infrared spectra.

The infrared absorption at 10.96 microns due to the allyl side chain did not disappear in the spectrum of the treated material (Fig. 14) but was 40% weaker than that of the original material. This value is based on a comparison of spectra whose concentrations in carbon disulphide are such as to give equal intensity carbonyl absorptions. A new shoulder appeared at 10.3 mi-





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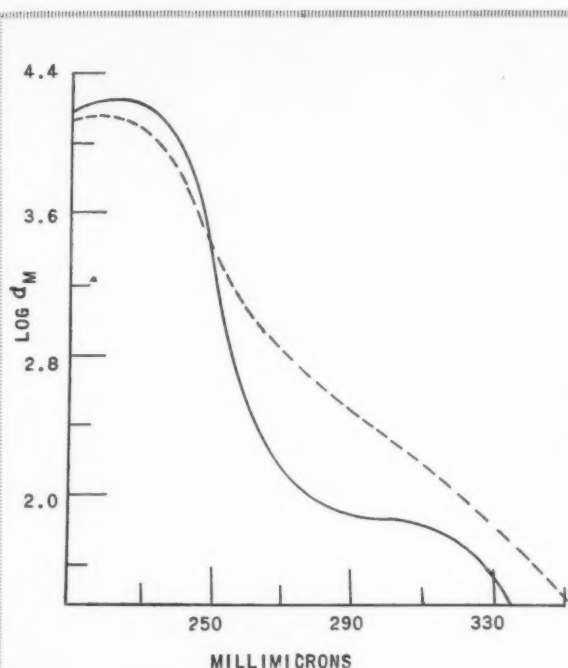


Fig. 15 — Allethrin
----- Allethrin Exposed to Ultraviolet Light 100 Hours (P.E. Insoluble)

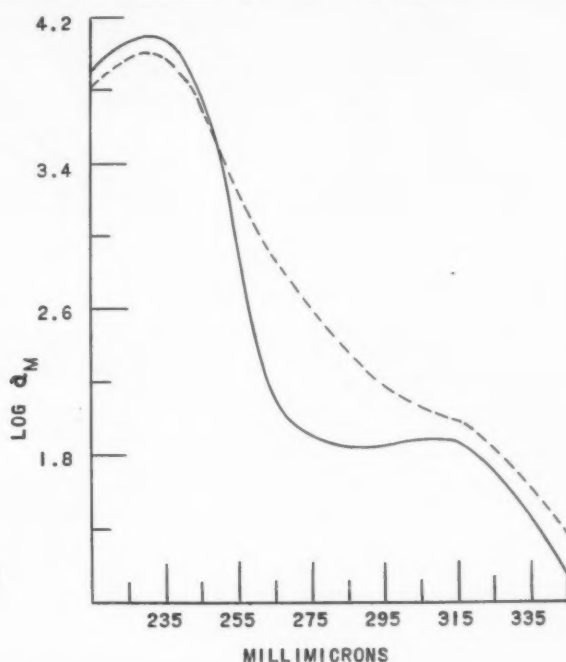


Fig. 16 — Allethrolone
----- Allethrolone Exposed to Ultraviolet Light 100 Hours

crons indicating the presence of trans $RCH=CHR$ grouping similar to the spectrum of dimerized pyrethrin. The ultraviolet absorption spectrum (Fig. 15) showed strong absorption in the 227 mμ region and may be assigned to the conjugated carbonyl structure. Ultraviolet light exposure of allethrolone (Fig. 16) resulted in nearly the same type of ultraviolet absorption curve.

The molecular weight of dimerized allethrin is 604 which is considerably higher than that found for the petroleum insoluble material (505). Some dimerization probably occurred along with some other molecular change which is obscure at the present time. A bioassay of this material showed no mortality effect against houseflies and in this respect it is similar to the pyrethrin dimer. The petroleum ether insoluble portion formed by ultraviolet irradiation of allethrolone showed a 10.94 micron absorption band indicating the presence of an unaltered allyl side chain. In addition, the molecular weight of the petroleum ether insoluble, gummy substance was found to be 318. The theoretical value for the dimer is

304. Ultraviolet exposure of allethrin and allethrolone under a stream of nitrogen yielded the same compounds as described above. Further work is being conducted with regard to this matter.

It is apparent that allethrin is considerably more stable to ultraviolet light than pyrethrins and that the effect of such irradiation upon the former is more complex.

Experimental

Apparatus

A Perkin-Elmer No. 21 double beam recording infrared spectrophotometer was employed with the controls set as recommended by the manufacturer. For ultraviolet spectral measurements, a Beckman spectrophotometer, Model DU, was used with fused silica cells of 1 cm. light path. Absorption spectra were obtained by recording absorbance readings at 2 mμ intervals and, in the neighborhood of maxima and minima, the interval was reduced to 1 mμ. Constant slit widths were maintained in regions of all maxima. The individual points are not shown on the graphs since they are so numerous as to de-

tract from clarity. Ethyl alcohol (SD 30, U. S. Ind. Chems. Co.) was used as the solvent in all ultraviolet absorption spectra.

The terms, "absorbance" and "absorptivity" are in conformity with the list published by the Society for Applied Spectroscopy (29) and are defined as follows.

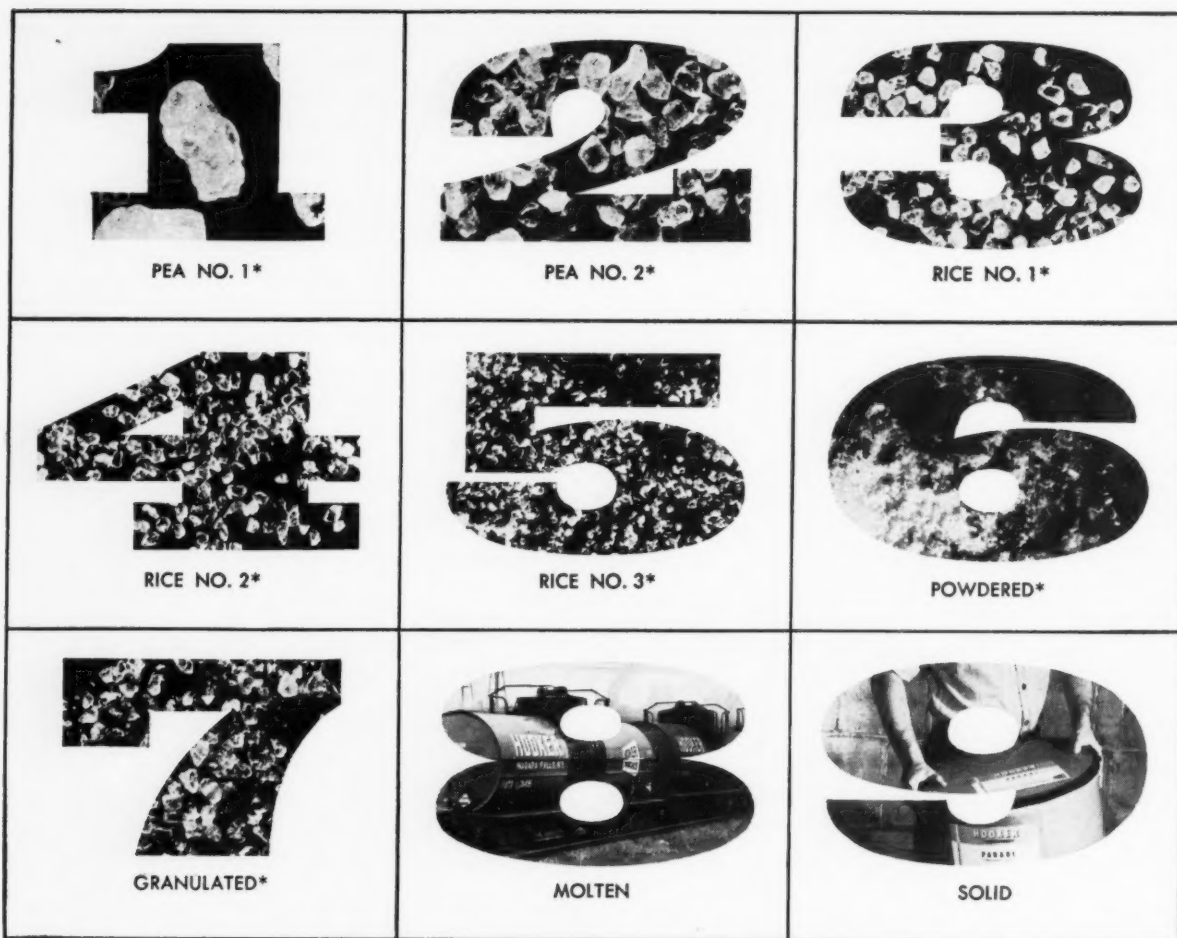
$$t = I/I_0$$

$$-\log_{10} t = a_M bc = A$$

where t is the transmittance, A the absorbance, a_M the molar absorptivity, b the light path in cm., and c the concentration expressed in gram moles liter⁻¹.

Ultraviolet irradiation of all samples were carried out with the aid of a Westinghouse Type RS sun lamp, emitting light down to 270 mμ. The lamp was placed six inches above the surface of a crystallizing dish immersed in a water bath. The materials under examination were approximately 1/8 inch in depth and the contents of the dish was stirred at hourly intervals. The temperature of the insecticides was maintained between 35° and 40°C.

Chemical assays were run in
(Turn to Page 197)



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S-2130

News

Velsicol Raises Anderson

M. L. Anderson has been appointed southwest district manager for the agricultural chemicals divi-



M. L. Anderson

sion of Velsicol Chemical Corp., Chicago, it was announced early this month. He will make his headquarters in Austin, Tex.

For the past four years he had been Velsicol sales representative in Texas, New Mexico, and Oklahoma. Before joining the firm in 1952 he had been associated with Virginia Smelting Co., West Norfolk, where he was manager of aerosol sales.

Jensen Joins Washburn

James D. Jensen has joined the sales staff of T. F. Washburn Co., Chicago, it was announced early this month. He will cover several southwestern states and will work with Dick Benson, veteran company representative in the area.

Blessing in New Post

S. C. Johnson & Son, Inc., Racine, Wis., has advanced Gordon G. Blessing to Mountain Zone manager it was announced recently. The zone includes Colorado, Wyoming, Utah, parts of Idaho, Montana, Nebraska, South Dakota, New Mexico, and Nevada. With Johnson's Wax since 1951, Mr. Blessing served as area manager in the Den-

ver district prior to his recent appointment.

Henry B. Kaestner Dies

Henry B. Kaestner, vice-president in charge of production for Acme Chemical Co., Milwaukee, Wis., died from a heart attack on the morning of Feb. 9. Born in 1900, he joined Acme in 1937 as a salesman in metropolitan Milwaukee. In 1940 he became plant superintendent and in 1949 he was advanced to vice president. Prior to joining Acme he had represented a pharmaceutical company for 13 years.

Mr. Kaestner is survived by his widow and by two sons: Jack who is chief chemist and Richard, a university student and part-time employee of Acme.

Mich. Chem. Shows Profit

The first profit in several years was reported by Michigan Chemical Corp., Saint Louis, Mich., in its 1955 annual statement to stockholders. The company showed a net profit of 64 cents per share or \$341,314 on the 537,077 shares outstanding against a net loss in 1954 of \$228,894 or 43 cents loss per share. Of this 1955 net profit, however, 19 cents came from non-recurring income resulting from the sale of property. Sales totaled \$6,526,275 for 1955, representing a 12 percent increase over the 1954 figure of \$5,829,342.

Simoniz Advances Lipps

Charles V. Lipps was appointed recently as vice-president in charge of marketing of the Simoniz Co., Chicago. Mr. Lipps has been with Simoniz since 1950 when he joined the firm as sales manager. Prior to that he was associated with the Kirkman Soap Co., Carnation Co. and other firms in sales management capacities.

In his new post Mr. Lipps will be responsible for directing the advertising, sales promotion and

market research activities of Simoniz and will continue to supervise the firm's sales department, which encompasses commercial as well as automotive and household products.

Married and the father of a son and daughter, Mr. Lipps lives



Charles V. Lipps

with his family in Wilmette, Ill., a north shore suburb of Chicago.

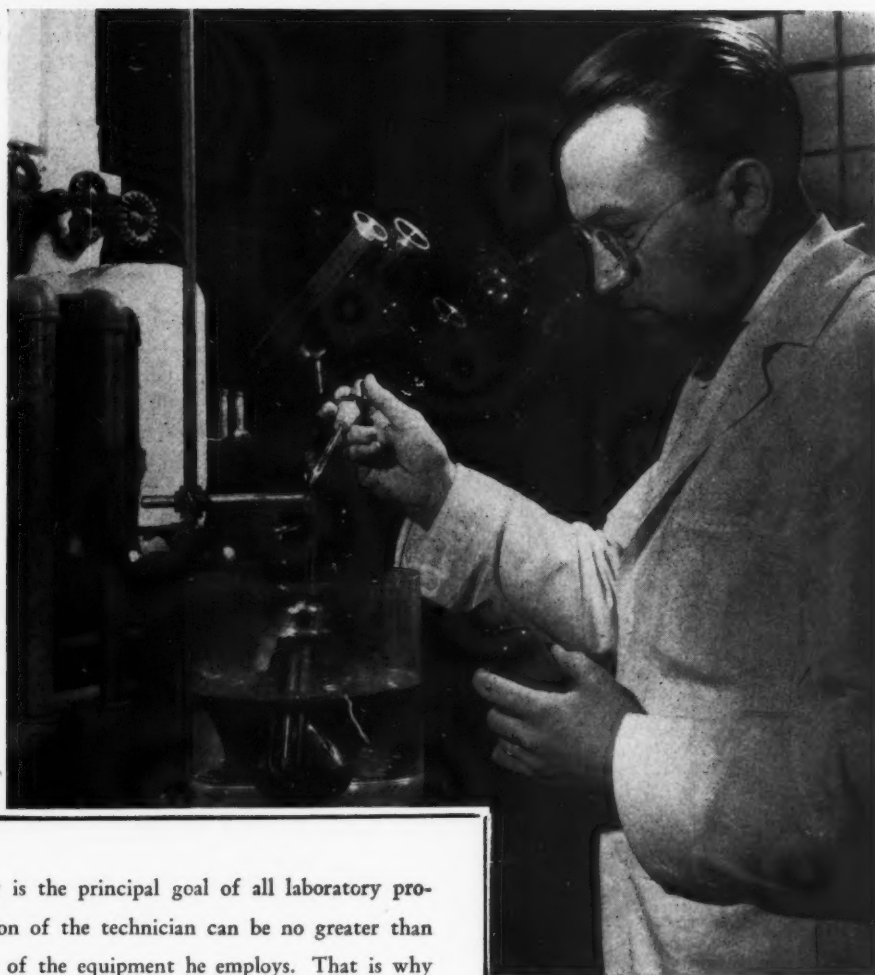
New Name for Zonite

Chemway Corp. is the new name adopted by the firm formerly known as Zonite Products Corp., New Brunswick, N. J. Approved by stockholders in November the change became effective after the close of business on the New York Stock Exchange on Feb. 29.

Smith & Nichols Moves

Smith & Nichols, Inc., importers and refiners of waxes, have moved their New York offices to 620 Central Avenue, Carlstadt, N.J., according to a recent announcement by Robert Strayer, secretary-treasurer of the firm. The move, which is effective March 1, represents a consolidation of office space and factory in New Jersey. The factory has been located in Carlstadt for over 90 years. A section of the plant was modernized and converted to office space for the move of the office force. Additional warehouse facilities have been added to the plant as a result of the consolidation.

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OPTIMUM accuracy is the principal goal of all laboratory procedures. But the precision of the technician can be no greater than the mechanical accuracy of the equipment he employs. That is why our Control Laboratories make use of the most efficient, most up-to-date equipment available in the many tests to which all of our raw materials are subjected before their approval for compounding or for sale. Typical of this is the magnetic stirrer illustrated above. This highly efficient unit, used in the determination of ketones by the neutral sulfite method, effects a more uniform mixture and with this achieves greater accuracy and more uniform results with an accompanying speed-up in the time necessary to complete the determination. The net gain of such efficiency in all of our operations is one of economy, dependability and quality for the users of Fritzsche products.

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FLAVOR RAW MATERIALS

Reily Appoints Stern

LeRoy Stern has been named as sales representative for the Industrial Products Division of Reily



LeRoy Stern

Chemical Co., New Orleans, it was announced recently by Kenneth B. Thompson, Jr. Mr. Stern will represent the firm in the southeastern

In FMC Research

Food Machinery and Chemical Corp., New York, announced last month three appointments to the staff of the Chemical Divisions' central research laboratory, currently under construction at Princeton, N. J. W. L. Davidson becomes assistant director of the laboratory. He served formerly as research director of FMC's Chlor-Alkali Division. Hugo Stange has been named manager of the organic chemistry de-

partment of the central research laboratory. Dr. Stange joined FMC last September as a member of the staff of Carl F. Prutton, vice-president and technical director, Chemical Divisions. He came to FMC from the research department of Olin Mathieson Corp., Niagara Falls, N. Y. Newly appointed manager of the inorganic and physical chemistry department of the laboratory is S. C. Carniglia, former research director at the Newark, Calif., facilities of FMC's Westvaco Mineral Products Division. Announcement of the appointments was made by Emil Ott, vice president, who is director of central chemical research of FMC's Chemical Divisions.

George A. Miel Dies

George A. Miel, 46, founder and president of George A. Miel, Inc., Lyndhurst, N. J., wax manufacturer, died Feb. 23 of a heart attack. Mr. Miel was also a vice president of Industrial Raw Materials Corp., New York, with which he had been associated for several years. He founded the Lyndhurst firm in 1946.

Group photograph taken during 16th annual Eastern Pest Control Operator's Conference held at the University of Massachusetts, Amherst, Feb. 2, 3 and 4. A record turnout attended the conference, a number of those present having attended all 16.



Cos. Chemists Name Root

Morris J. Root, technical director of G. Barr and Co., Chicago, has been named co-chairman of the



Morris J. Root

membership committee of the Society of Cosmetic Chemists. He will recruit members in the Midwest area. The new co-chairman will work in cooperation with Michael A. Stanton, Stanton Laboratories, New York, membership chairman.

Weiner to Europe

Abraham Weiner, president of Standard Chlorine Chemical Co., South Kearny, N. J., left aboard the *Queen Elizabeth* on Feb. 17 for a three week stay in Europe. Mr. Weiner's trip, which will take him to Holland, Germany and England, where he plans to consult with business interests in Europe.



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is more effective with the addition of only a small amount of TRITON-HYAMINE detergent sanitizer. Detergent wets surfaces thoroughly and aids complete rinsing; germicide kills bacteria simultaneously.

TRITON-HYAMINE Detergent Sanitizers Increase Sanitation Efficiency in Dairies

After numerous field tests by bacteriologists, there is mounting evidence that TRITON-HYAMINE detergent-sanitizers consistently improve the effectiveness of sanitizing practices on milking machines, milk cans, and pails. And it's done in one combined cleansing-sanitizing operation.

One indication of this greater efficiency is the lower thermoduric count of milk processed with treated utensils. In addition, milkstone deposits left over from previous methods have either diminished or disappeared completely. When properly formulated, TRITON-HYAMINE detergent-sanitizers retain their germicidal activity over a wide range of hard waters and over a wide range of solution temperatures.

Write today for more information about these odorless, non-irritating sanitizers.

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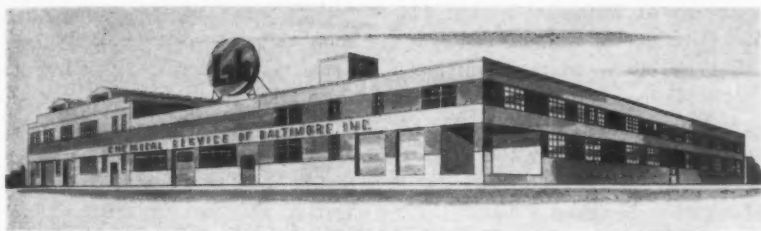


Chemicals for Industry

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Representatives in principal foreign countries



New research and control laboratories of Chemical Service of Baltimore, Inc., Baltimore, have been added in firm's recently completed expansion program.

Chemical Service Expands

Chemical Service of Baltimore, Inc., Baltimore, recently announced the expansion of its plant building, which now provides 70,000 square feet of floor space and covers one city block. New shipping facilities have been added which include loading platforms for nine vans at one time and a railroad siding that can accommodate eight freight cars. Modern production facilities include automatic filling lines, 100,000 gallon tank storage capacity, fully equipped control and research laboratories, lithographic packaging department and complete printing shop. Chemical Service of Baltimore produces a complete line of chemical specialties for industrial and institutional cleaning and maintenance.

New Sinclair District Mgr.

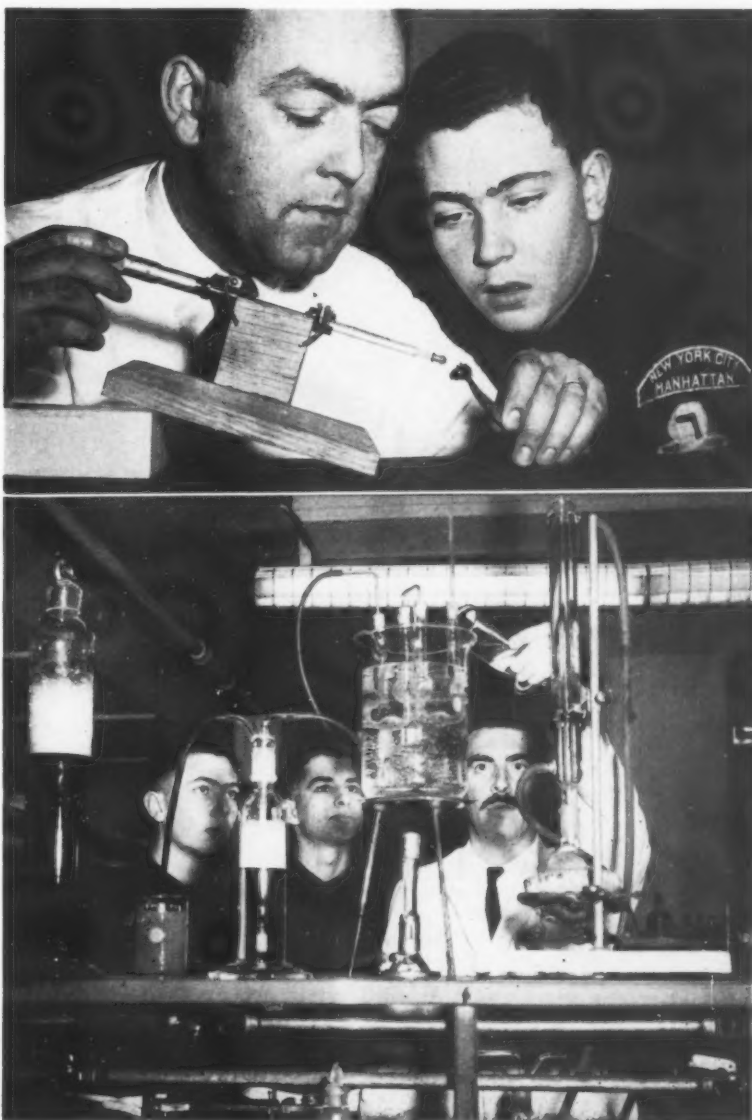
John A. Corrigan was recently appointed midwest district sales manager of Sinclair Chemicals, subsidiary of Sinclair Oil Corp., New York. Mr. Corrigan will manage the company's chemical marketing activities and will have his headquarters in Chicago.

Mr. Corrigan is a native of Detroit and was graduated from the University of Notre Dame in 1949 with a B. S. in chemical engineering. He was associated with U. S. Gypsum Company as sales engineer in Chicago, and later, in New Orleans. In 1951, he became associated with Pennsylvania Salt Manufacturing Co. in Tacoma, Wash. Prior to coming with Sinclair Chemicals in 1953, Mr. Corrigan was industrial sales engineer for Pure Oil Co. in Chicago and Minneapolis.

Boyer in New Post

Leslie W. Boyer has been named sales manager for the Indianapolis district of Republic Creosoting Co., Indianapolis, it was announced late in February by Peter C. Reilly, vice president. Mr. Boyer's previous associations include American Radiator-Standard Sanitary Co. and American Creosoting Co. In his new post he will make his headquarters in Indianapolis.

Two Eagle Scouts from the New York area were guests at an all-day visit to West Disinfecting Co., Long Island City, N. Y., in observance of Community Leadership Day, Feb. 9. The scouts spent a good part of the day in West's research laboratories and also were given a complete tour of the plant. In top photograph R. L. Brett, West's chief entomologist, shows Eagle Scout Joel E. Langer one of the ways the firm determines the insecticidal value of a new chemical. Lower photo shows Eagle Scouts Langer and Edward Gaynor watching West's research director, M. G. Sutton, work with intricate vacuum distillation set up.



Werner in New Post

Appointment of John L. Werner as eastern representative of petroleum chemical sales for the organic chemicals division of Monsanto Chemical Co., St. Louis, Mo., effective March 1, was announced by John L. Hammer Jr., divisional director of marketing. In his new assignment Mr. Werner succeeds James B. Irwin who has been transferred to the petroleum sales de-

partment of Monsanto's Lion Oil Co. Division, El Dorado, Ark. Mr. Werner's headquarters are in New York. He has represented the firm's petroleum chemicals since he joined the sales department in 1946.

Hercules Names Four

Four new managerial sales appointments were announced last month by the naval stores department of Hercules Powder Co.,

Wilmington, Del. L. E. Anderson becomes sales manager of the oxychemicals division. With Hercules since 1937 he was manager of the department's Chicago district office for the past four years. Prior to that he served for five years as manager of the San Francisco district office.

Richard J. Both succeeds Mr. Anderson as manager in the Chicago district office. He has been with Hercules since 1940 and has most recently served as sales manager of the naval stores department's agricultural chemicals division. He is succeeded in that position by P. J. Reno, who had managed the naval stores Dallas office for the past six years. Mr. Reno joined Hercules in 1941. Allen C. Gunter has been named to fill Mr. Reno's former post as Dallas district office manager. Prior to joining Hercules in 1952 Mr. Gunter had been extension entomologist at Texas A & M.

Stauffer Advances Emison

Sam Emison has been appointed director of industrial chemical sales of Stauffer Chemical Co., New York, it was announced in February. He succeeds R. U. Haslanger who has resigned to accept an executive position with a newly formed chemical firm.

Mr. Emison joined Consolidated Chemical Industries, Inc., recently merged into Stauffer, in 1925. For the past 15 years he served as sales manager of Consolidated. In his new position he will make his headquarters in New York.

New PICCO Warehouses

Pennsylvania Industrial Chemical Corp., Clairton, Pa., recently opened two new California warehouses, one in San Francisco, the other in Los Angeles. The San Francisco unit is located at 645 Third St. and the Los Angeles warehouse is at 923 East Third St. The firm's district sales office at 3460 Wilshire Blvd., Los Angeles, will now direct all west coast warehouse activities.

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M. ARGÜESO & CO. INC.

Established 1908

Vienna Pesticide Rep. Here

Rudolf Zellenka of Zellenka & Co., Viennese insecticide firm, arrived in this country late last month to introduce a new patented pest control process and to discuss insecticide production techniques with American manufacturers.

In addition to its Austrian plant, Zellenka & Co. also has a factory in Holland. Mr. Zellenka will be in the United States for about two months. During his stay he will make his headquarters at Felton Chemical Co., 599 Johnson Ave., Brooklyn, N. Y.

R & H Moves Branches

The San Francisco office of Rohm & Haas Co., Philadelphia, recently was moved to the Pacific Mutual Building, 600 California Street. K. L. Jopke, pacific coast manager, is in charge of this office and L. L. Isenhour is representative for agricultural and sanitary chemicals.

The firm's Atlanta office also

New "Spritz" anti-fog in non-breakable, non-spillable, plastic spray bottle was announced recently by Merix Chemical Co., Chicago. Product is designed to prevent fog from forming on inside of automobile windows. Fifty-four, four-ounce bottles are packed to a case. Product is being marketed through automotive, safety, hardware and houseware outlets. Retail price 89 cents.



is in a new location at 1428 West Peachtree Street, N. W. Textile chemicals sales are being handled by A. K. Haynes and L. C. Harmon, Jr.

Stauffer Phosphate Deposit

Stauffer Chemical Co., New York, has unearthed a large deposit of phosphate rock on land near Bear Lake, Idaho. After five years of exploration and development work, the company states that estimates

place the deposit at 5,000,000 tons of commercial grade phosphate rock. The development is being carried out for Stauffer by the San Francisco Chemical Co. Cost of the initial development work is estimated at \$400,000. The deposit will provide a long term reserve for Stauffer plants at Richmond and Vernon, Calif. and Tacoma, Wash. as well as for the Garfield, Utah, plant of Western Phosphates, Inc., a Stauffer affiliate.



Toxicological Evaluation of Chemical Specialties

Our laboratories are in excellent position to establish the toxic hazard presented by consumer and industrial products. On the basis of test results, we confirm the adequacy of warning labels, or prepare label copy for new formulations. In drafting directions and caution statements it is advisable to consider accidental wrong use and consequences.

It is essential to know the relative toxicity before deciding on a warning or caution statement. One reason for biological test information is the difficulty—frequently the impossibility—of determining the undesirable properties of a mixture from the properties of its components. Ingredients, too, may be changed from time to time, either by the formulator or by the primary producer. Thus, reconfirmation of toxic levels is desirable.

In addition to toxicological services, our laboratories offer companion services for determining fire hazard of a consumer product, and for ascertaining hazard to property by right or wrong use.

Your outline of your problem will bring our prompt reply as to what we can do for you, and the estimated cost of the service.



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Dependable Source for Chemical Raw Materials



Discussing Dover's expansion plans are, left to right: Samuel R. Thrush, plant manager; Eric R. Beu, chief process engineer; and Robert S. Cohen, president.

"Wyandotte is one of the most customer-conscious suppliers we have dealt with"

—Robert S. Cohen, president, Dover Chemical Corporation, Dover, Ohio

The Dover Chemical Corporation started out in 1949 manufacturing one grade of chlorinated paraffin. Today it is an important producer of chlorinated paraffins, with eight grades varying in chlorine content from 30 to 70 per cent.

Dover's chlorinated paraffins find their way into many industries. They are used in the manufacture of cutting oils, as additives for lubricants, as flame-proofing components in paints and polyester resins, and as co-plasticizers in vinyl resins—to name just a few.

Other products which have been added recently include ortho-dichlorobenzene, used as a solvent in engine-cleaning compounds and in sewage treatment, and para-dichlorobenzene for use in moth balls and deodorants.

In order to better serve these varied markets, Dover looks to companies like Wyandotte for technical assistance. In the words of Robert S. Cohen,

Dover's energetic president: "Wyandotte's service and technical advice have been very valuable to us. At the present time, we are engaged in an expansion which will add several entirely different products to our line, and based on past performance, we know we can depend on Wyandotte's representative to get technical service to us promptly when we need it.

"When we order Wyandotte Chlorine, we can be sure that it will be delivered on time. Delivery is so dependable that we have come to take it for granted."

Are you looking for a reliable source for chemical raw materials . . . a source with a background of years of experience in many industries?

If you are, you'll find the people at Wyandotte good people to do business with. You'll like the consistently uniform quality of Wyandotte's products,

and the dependability and scope of Wyandotte's service.

Why not talk over your requirements with a Wyandotte representative? Or write us, giving as many details as possible about your uses for chemical raw materials. *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Offices in principal cities.*



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 Muriatic Acid • Calcium Carbonate • Calcium Chloride
 Glycols • Chlorinated Solvents • Synthetic Detergents
 Other Organic and Inorganic Chemicals

Aerosol Particle Gauge

A device for measuring the size distribution of particles dispersed in air has been developed recently in research at Battelle Institute, Columbus, O. Described as a cascade impactor, the device was developed in a study for the Army Chemical Corps to sample aerosols. The instrument is used to determine the proportion of aerosol particles belonging to each of several size ranges. Its use offers the following advantages: A relatively large sample may be collected and analyzed in a short time. Microscopic counting of particles is eliminated in routine analysis, although it is required for calibration of the instrument. Bias resulting from evaporation and nonrepresentative sampling is minimized.

Construction and use of the impactor were described during a session of the Aerosol Division at the 42nd annual meeting of the Chemical Specialties Manufacturers Association in New York. J. Mason

Pilcher presented a paper co-authored by him, R. I. Mitchell and R. E. Thomas of Battelle.

Dow Opens Camden Office

The opening of a new office in Camden, N. J., was announced recently by Dow Chemical Co., Midland, Mich. The new office is located at 400 Market St. in downtown Camden and replaces that formerly maintained in Philadelphia. A staff of 24 salesmen, headed by Joseph G. Widua, manager, covers Pennsylvania, Maryland, Delaware, Southern New Jersey, Virginia and West Virginia from the new Camden office.

Ultra Plant Addition

Completion of a \$250,000 plant addition in the organic chemical department of Ultra Chemical Works, Inc., Paterson, N. J., was announced late last month by William H. Spuhler, president. Ultra is an associate of Witco Chemical Co., New York.

Cascade impactor, developed by Battelle Memorial Institute, Columbus, O., for the Army Chemical Corps, provides means of determining particle size distribution by utilizing two forces: particle inertia and drag force of air. Knowledge of particle size distribution of aerosols is important for effective application of materials as aerosols. Increasing speed and inertia are imparted to particles as aerosols are drawn through a series of funnels with successively smaller openings. When inertia of particles overcomes air drag, they impact on various slides, where their presence can later be determined by various techniques.



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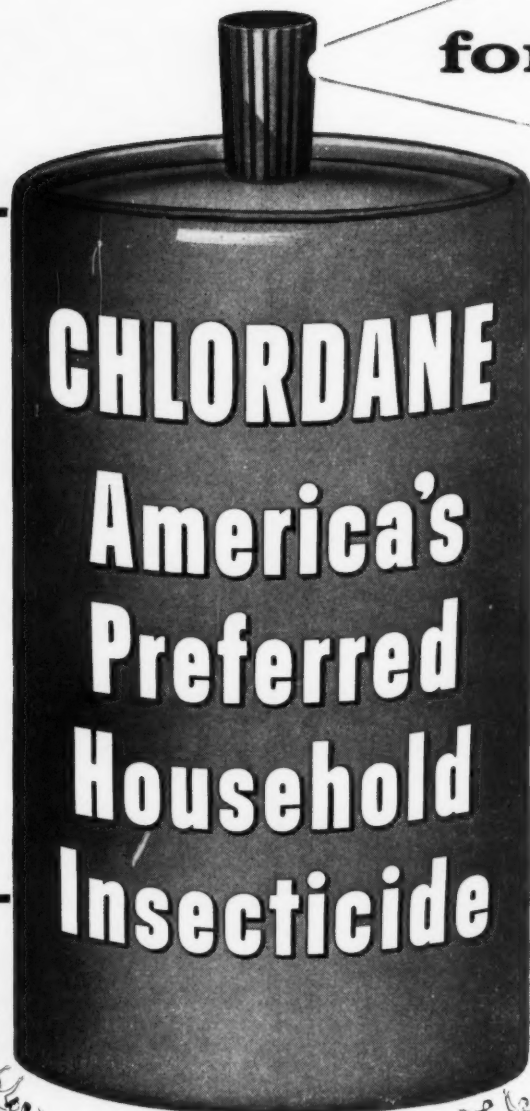
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Kommerstad Honored

R. J. Kommerstad has been selected salesman of the year for the Diversey Corp., Chicago, it was



R. J. Kommerstad

announced recently by W. E. Noyes, vice-president in charge of sales. Previously, at the annual 1956 division sales conference in Minneapolis, Mr. Kommerstad had been named outstanding salesman in the north central division. The award carries with it an all-expense paid tour of the Caribbean for Mr. and Mrs. Kommerstad.

Mojonnier Price List

Mojonnier Associates, Inc., Franklin Park, Ill., recently published a price list of its "700" series of "electromatic" fillers for low pressure aerosols. The series consists of interchangeable table units on which are mounted various types of fillers, crimpers, pressure fillers, etc. There is a semi-automatic line, where crimpers and pressure fillers are air operated. Units may be latched together in different ways to set up different types of lines. In the fully automatic line, crimpers and pressure fillers are hydraulically operated. Each table unit is equipped with a conveyor section, an hydraulic system, an electrical system and necessary accessories. The catalog gives specifications of the various units and their prices. In addition, examples are given of complete assembled lines for various purposes. In each instance the price of individual units and the combined cost of the

complete line are quoted. This part of the Mojonnier list should be of interest to anyone concerned with pressure packaging.

Shell District Office Move

The Agricultural Chemical Sales Division of Shell Chemical Corp., New York, moved last month the office of its recently consolidated Delta-Houston district. Formerly located in Jackson, Miss., the district office is now at 119 South Claiborne, New Orleans 12, La., telephone EXpress 1561. Reason for the move is the central location of New Orleans, according to F. W. Hatch, division manager. An area office will be maintained in Houston under the supervision of A. J. Geron.

The consolidated district now covers a seven-state area: Texas, Oklahoma, Arkansas, Mississippi, Alabama, Louisiana, and part of Tennessee.

More Dow Ethylene Oxide

Dow Chemical Co., Midland, Mich., recently announced plans to expand the annual ethylene oxide production capacity at its Texas Division plant in Freeport. The expansion amounting to 30 million pounds a year is slated for completion in late 1956. At the same division a 60 million pound increase per year in ethylene oxide-glycol capacity was announced last September, according to a statement by Donald Williams, vice president and director of sales. Ethylene oxide serves as an intermediate in the manufacture of glycols, surface-active agents, emulsifiers, and ethanamines.

Ungerer Sells Exchange Oils

Ungerer & Co., New York essential oil firm, has recently been appointed to represent Sunkist Growers Products Department of Ontario, Calif., in the sale of Exchange Brand lemon and orange oils. Ungerer, along with Fritzsche Brothers, Inc., and Dodge & Olcott, Inc., both New York, is representing the California company in the sale of these citrus oils.



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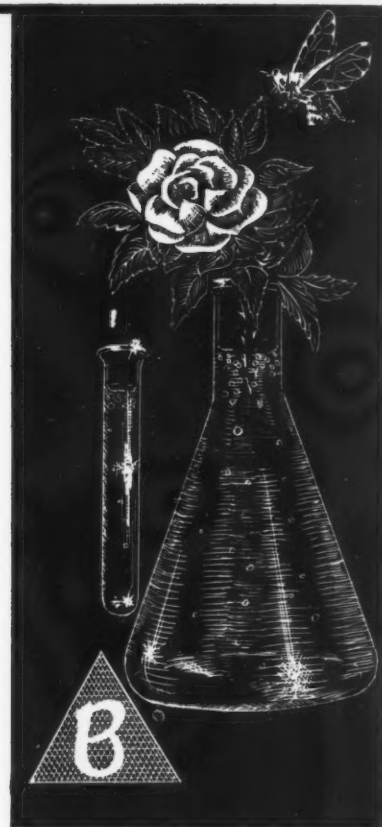
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GAF Acetylene Plant

Full scale commercial production of PVP and other high pressure acetylene products started February 28 at the new \$6,000,000 plant of General Aniline & Film Corp., New York. Located at Calvert City, Ky., the plant is the first of its kind in the United States. Hans Beller, with GAF since 1941, is manager of the plant. He played a leading part in the construction and operation of the pilot plant in Linden, N.J., where some of the new products have been manufactured in semicommercial and laboratory quantities since 1947. Present at the opening of the Calvert City facilities were John Hilldring, president of General Aniline and Philip M. Dinkins, vice president in charge of operations of the dyestuff and chemical division, which will operate the plant.

The plant's product line includes polyvinylpyrrolidone (PVP) and PVP-iodine, propargyl alcohol and bromide, butynediol, butanediol, butyrolactone, pyrrolidone, methylpyrrolidone, and vinyl pyrrolidone.

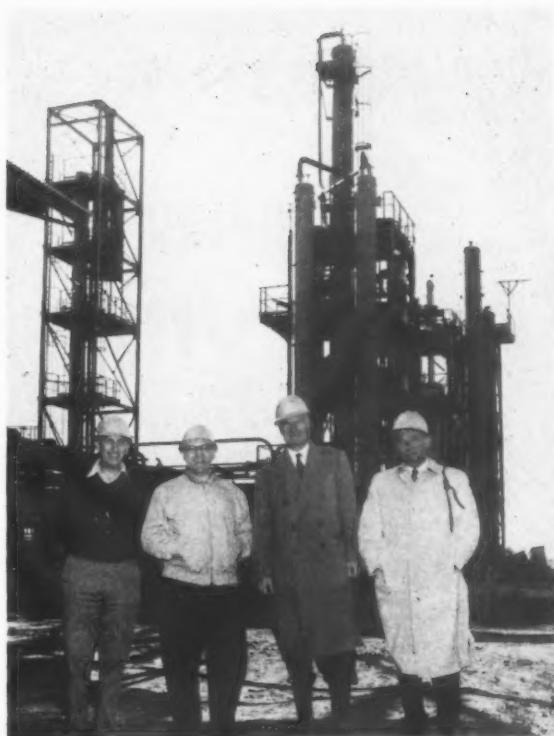
PVP's uses in cosmetics includes aerosol hairsprays, shampoos, and shaving creams. In detergents it prevents soil redeposition, prevents or reduces bleeding of dyes in laundering, and reduces irritation caused by detergents.

PVP-iodine is an effective bactericide and fungicide said to be less toxic than other forms of iodine.

Butyrolactone, pyrrolidone and methylpyrrolidone are solvents for agricultural chemicals and a variety of other products, while propargyl alcohol and butynediol are suggested as corrosion inhibitors in dry cleaning solvents and other fields.

General Aniline's commercial development department has test marketed the new products. A new acetylene chemicals sales department has now been set up within Antara Chemicals Division. Daniel B. Witwer, who previously handled the items in commercial development, will head the department.

Photo taken near processing towers for pyrrolidone, butyrolactone and propargyl alcohol at new Calvert City, Ky., acetylene chemicals plant of General Aniline & Film Corp., New York, shows, l. to r.: O. W. Schnetzer, assistant project director; F. Wuerth, project director; vice-president P. M. Dinkins, in charge of the company's dyestuff and chemical division, and Dr. Hans Beller, recently appointed plant manager for the new \$6,000,000 development.



New Moth Preventive

"Moth-Cloud" is the trade name of a new moth preventive developed recently by Continental Chemiste Corp., Chicago. The new product comes in tablet form and is said to destroy all stages of moth life. When one of the tablets is placed in a small dish on a closet floor and lighted with a match a white insecticidal cloud rises to engulf the closet and its contents. The tablet is said to leave no odor and be stainproof. "Moth-Cloud" comes packed in bottles of 25 tablets and costs \$1. Continental Chemiste Corp. is headquartered at 2256 West Ogden Ave., Chicago 12.

New Floor Wax Resins

Three new acrylic copolymer emulsions for the formulation of self polishing floor finishes were introduced recently by Polyvinyl Chemicals Division of Stahl Finish Co., Peabody, Mass. Designated "NeoCryl A230U, A232U, and A234U," these emulsions are said to be easy to formulate and to impart to the finished product high gloss, good resistance to water spotting, ease of removal, and good freeze-thaw stability. Economy

without change of film characteristics on aging is claimed for these products, which are suggested for use on vinyl, linoleum, asphalt and other floorings. Samples and technical data are available from Polyvinyl.

Shell Termite Booklets

A new, free mailing folder has been made available to pest control operators by Shell Chemical Co., New York. The folder, which illustrates methods of detecting termites and recommends the use of the insecticide "Dieldrin" for control, has space for the individual pest control operator to imprint his own name and address for mailing to prospective customers. No mention of Shell Chemical Co. is made in the folders.

Fifty of these mail folders will be sent to each pest control operator upon request. Additional numbers are available upon special request to Shell.

The mailing by individual pest control operators will be in conjunction with a national advertising program in leading consumer magazines by Shell stressing the use of "Dieldrin" for termite control.



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VAC-DRY is made from lighter-colored raw shellac. It has low acid value. Takes less alkali to go into solution for greater water resistance. Dissolves readily. Makes an unusually stable aqueous solution.

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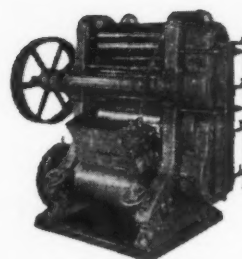
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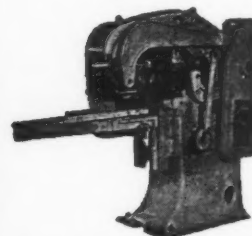
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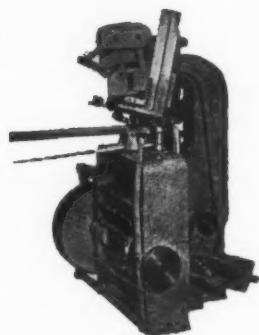
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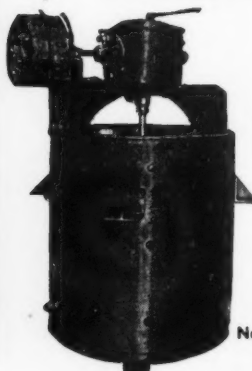
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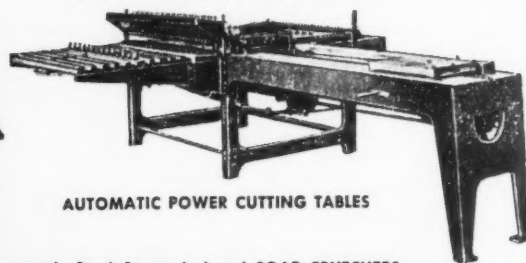
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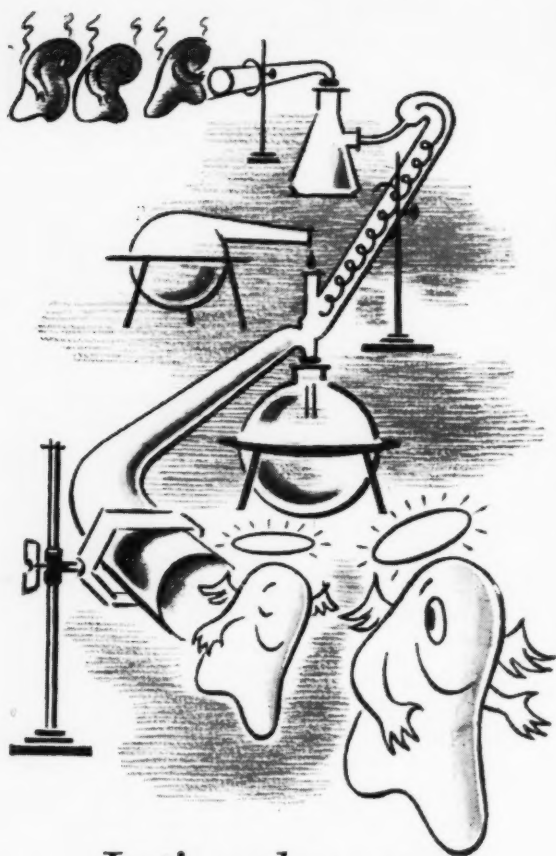
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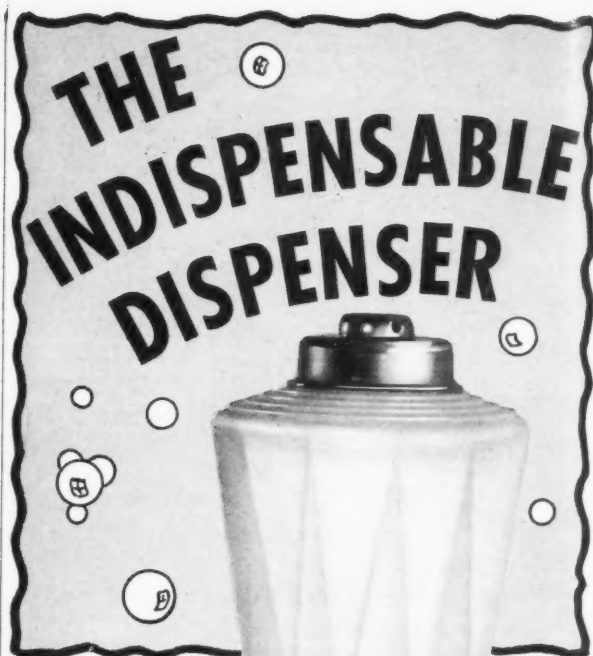
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Standard Reference Books
See Page 198

Miscellaneous

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"Alamask" Bulletin

A six-page bulletin was published last month by Rhodia, Inc., New York, on the use of "Alamask" odor control chemicals in rendering operations. For each individual operation the most effective products, mode of application and use dilutions are indicated. Copies of the folder may be obtained by addressing Rhodia's aromatic division at 230 Park Avenue, New York 17.

—★—

N. Y. Cos. Chems. Meet

The New York Chapter of the Society of Cosmetic Chemists will hold its next meeting March 28, at the Brass Rail Restaurant, New York. Francis L. Wurtzburg, Jr., a physicist in the research laboratories of Interchemical Corp., New York, will speak on "Color and Controls".

Food Aerosols

(From Page 145)

of products like mustard, catsup, sauces, dressings and other liquids and semi-liquids. Like other convenience foods, products put up in pressurized cans will undoubtedly command a higher price—but consumers seem more than willing to pay the price."

Perhaps, as indicated by this quote, the economic factor of aerosol foods has been overemphasized.

Suitable Propellants

ANOTHER important factor in the future development of food

aerosols is the availability of suitable liquefied gas propellants. By suitable, we mean both compatibility with water base products as foods, as well as those acceptable to Food and Drug officials from a public health viewpoint. Even though organic propellants as used in non-aerosols are considered non-hazardous and non-toxic, their use in food products require a long range evaluation program which is both costly and time consuming. It is encouraging that the two manufacturers of organic aerosol propellants are giving at least preliminary study to this problem. The availability of such liquefied gases would help considerably in minimizing the economic factor by permitting fuller utilization of the container capacity and reducing unit cost to the consumer.

We have rather sketchily outlined the problem of producing new food aerosols. We hope we have not been too discouraging. Given sufficient time, money, and encouragement, we believe the technical problem can be solved. In fact, many are well on their way to solution. What is needed is a wedding of the imagination and ingenuity of the food technologist with existing and potential aerosol knowledge to produce new type food products, perhaps slightly different from the non-pressurized but of a pleasing nature as to find acceptance by the American food consuming public. Considering the work already under way, we can predict, in the not too distant future,

the hostess will serve her hor d'oeuvres cracker-ready from pressure-packed containers.

The modification of a salad dressing to a dressing topping containing the texture and appearance of whipped cream but with taste and flavor of salad dressing is also an illustration of what can be done.

Of the host of non-food aerosol products now widely used, the commercial success of few were guaranteed in advance. For those considering the food aerosol field, the rapid growth of the aerosol industry with its long list of successful products is the encouraging hope and promise. As a sign of caution, there is also the list of products which have failed to gain any appreciable commercial acceptance.

With food aerosols, as in so many fields, the future belongs to those who dare to do the unusual.

Reference

1. Graham, Earl, "Packaging Whipping Cream in Pressurized Containers", *Food Technology*, 1950, Vol. 4, No. 6, Pages 225-229.

Market Research

(From Page 149)

ther breaks the figures down by category of stores. The 1954 Census of Retail Trades will also be available in 1956.

- (c) *Institutional*. This includes schools, hospitals, eleemosynary welfare, recreational and accommodation al es-

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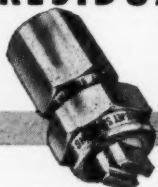
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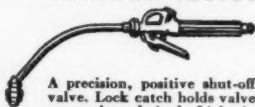
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tablishments, as well as purchases by federal, state or local governments. It is difficult to select a general indicator for this group in the same way as the earlier two. There does not seem to be any index directly related to them. Of course a number of statistics are available and would be useful to those servicing specific segments of this field. For instance, the number of hospital beds would show the potential in this field or the number of pupils attending schools and colleges would similarly provide statistics for those interested in that field; but here, again, I have tried to find a general and available series of statistics and to do this I analysed the problem as follows. Primarily, institutions depend on population. Schools, hospitals, other institutions and government installations are more numerous where the population is greatest. This is only logical. However, to use a straight population statistic in a county with unequal spending power would give another distorted image. For example, an area in Mississippi would spend far less on its institutions than an equally populated area, say in Connecticut. Thus, it is not only population but what it has to spend, which will give a truer characteristic. Therefore, for this purpose, I have selected a population spending index, which is available in "Consumer Markets" under the heading of Consumer Spendable income and in "Survey of Buying Power" under "Effective Buying Income". These are based on rather complicated projections as is explained in the forewords in both publications. They are similar to the heading "Disposable Personal Income" used in the "Survey of Current Business" (U.S. Department of Commerce, Office of Business Economics).

As will be realized hereafter, all three of these indicators will need to be expressed as percentages of the national totals for each county and important cities throughout USA.

(To be Concluded)

Allethrin vs. Pyrethrins

(From Page 173)

duplicate by both hydrogenolysis (14) and infrared (16) methods. Results from the two procedures agreed within 0.5%. The determination of chrysanthemum acid anhydride, allethrolone and trans-allethrin have been described by Freeman (16). Bioassays were carried out by the Wisconsin Alumni Research Foundation using the large group Peet Grady method with four replicates per sample.

Color readings on allethrin samples appearing in Tables 1 through 4 refer to the Gardner Color Standards (H. A. Gardner, Inc., Bethesda, Md.).

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Home Laundering

(From Page 42)

better washing results than detergent with hard water or soft water, when all washing conditions were considered.

Summary

A METHOD using a radioactive compound in a soiling agent for laundering tests in home washers is described. The data obtained by this method are a direct measure of the amount of the soiling agent removed in laundering.

The soil employed was a fatty material with a radioactive component. The lowest percent soil removed in any wash test was 38.2; the largest was 73.8. Thus, the kind of soil in the amounts used gave a useful range of values for determining the relative effectiveness of the home laundering procedures investigated.

Since this is a new method, one logically asks "how reliable or valid are the results obtained by this method?" The reliability of the method partly is attested by the results. For example, the results on temperature effects are in agreement with practical observations in home laundering. That is, in general 120° F. wash water is inferior to 140° F. or 160° F. wash water. Also, 140° F. and 160° F. wash water give approximately the same cleaning.

No reports were found in the literature covering controlled laboratory work or practical tests with home washes for soap with soft water versus detergent with hard and soft water. However, the finding that soap with soft water gives better washing results than detergent with hard or soft water appears reasonable.

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Coming Meetings

American Oil Chemists' Society, 47th annual spring meeting, Shamrock Hotel, Houston, Texas, April 23-25.

American Society of Perfumers, symposium: Premarket Testing of Fragrances, Essex House, New York, afternoon of March 21.

Chemical Specialties Manufacturers Association, 42nd mid-year meeting, Drake Hotel, Chicago, May 20-22.

Committee D-12 on Soaps and Detergents, annual meeting, Park Sheraton Hotel, New York, Mar. 19-20.

Entomological Society of America, annual meeting, Dec. 27-31, 1956, Hotel New Yorker, New York City.

International Sanitation Maintenance Show and Conference, New York Coliseum, Oct. 14-16.

National Association of Retail Grocers, Los Angeles, June 10-14, 1956.

National Association of Sanitarians, 20th annual conference and exposition, Morrison Hotel, Chicago, July 23-26.

National Hotel Exposition, 41st annual show, Coliseum, New York City, Nov. 12-16.

National Packaging Exposition of the American Management Association, Convention Hall, Atlantic City, N. J., Apr. 9-12.

National Premium Buyers Exposition, Navy Pier, Chicago, March 19-22.

National Sanitary Supply Assn., 33rd annual convention and trade show, Conrad Hilton Hotel, Chicago, Apr. 29, 30 and May 1-2.

Society of Cosmetic Chemists, semi-annual meeting, Biltmore Hotel, New York, May 18.

Super Market Institute, 19th annual convention, Cleveland, O., auditorium, May 6-9.

Synthetic Organic Chemical Manufacturers Association, monthly luncheon meetings, Roosevelt Hotel, New York, April 12, outing at Skytop, Pa., May 16-18.

Toilet Goods Association, annual meeting, Waldorf-Astoria Hotel, New York, May 15-17.

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Tale Ends

BALTIMORE pickle packer enters the aerosol business! C. C. Lang & Co. are first to market a new aerosol soft drink. And it's concentrated and comes in seven delicious flavors. It works like this—you squirt the concentrate out of the aerosol can into a glass of cold water or carbonated liquid with ice and drink. Simple as that. And this pickle packing outfit is really diversified. They also make food processing machinery and bottle caps.

* * *

Another bachelor heads south to Florida on his honeymoon! Al Pollock who with his brother, Sam, runs the National Chemical Laboratories in Philadelphia recently deserted the ranks of the bachelors to marry Miss Sonia Glick, also of Philadelphia, on February 13. No use fighting the trend, men. Sooner or later this alleged weaker sex gets us all!

* * *

Dr. H. B. Hass, president of the Sugar Research Foundation, is getting a lot of newspaper publicity these days on his detergents from sugar. He says that 130 companies are investigating the possibilities of new sucrose esters for detergents, shampoos, tooth pastes, cosmetics, cake mix and chocolate drink. The detergent contains 42 per cent animal or vegetable fat and 58 per cent sugar esters. They clean real swell and cost 13¢ a lb. to make. Good in hard water or soft. No bath tub ring. Anybody who wants to make the stuff can get in touch with Dr. Hass at the Foundation in New York and get a license. Maybe sugar's going to be our next big chemical raw material!

* * *

Armour is really putting the advertising heat on "Dial Shampoo"! According to the George Gobel T.V. Show of Armour, customers who send in a Dial Shampoo bottle cap will receive a personal check from the comedian for 28 cents, 25 cents toward the purchase of another bottle of the shampoo plus 3 cents postage. This new idea will be backed by advertisements in 228 Sunday newspaper comic sections and supplements which it is estimated are read by 39 million families. Zowie and shades of hexachlorophene!

* * *

Book of the month! Fruit of the month! Cheese of the month! What next? Well, good folks, we'll tell you. It's a "Tube of the Month Club" and it's run by the Sun Tube Co. out New Jersey way as sort of an advertising stunt. Every month, they mail a different tube-packed product to 500 of their customers and sales prospects. The object is to encourage these people to pack more products in tubes, and incidentally, use more tubes. This strikes us as a pretty good idea.

It was 40 years ago and a young cub salesman of perfuming materials called on John McLaughlin, president of the Soudan Specialty Co. of Milwaukee. Reminiscing recently, John Halaska, prez of Acme Chemical of Milwaukee, tells how the young squirt salesman literally dragged an order out of McLaughlin (Halaska's grandfather and a tough buyer) and moved on. Acme Chemical is the successor to Soudan Specialty. And the young hot-shot salesman? None other than Percy C. Magnus, today prez of Magnus, Mabee & Reynard, Inc., man about town in N. Y., politico of note, and likewise "a man of distinction," making his first sales trip into the mid-west for MM&R.

* * * * *

Insecticide manufacturers, arise!
The dear old Post Office Dept. is dis-

continuing offices or changing names of a long list of American towns named after bugs. Among those to bite the dust in 1955 were Cricket, Ill.; Fly, Ga.; Horsefly, Calif.; Gnat, Ga.; Roach, Fla.; Wasp, Tenn.; Hornet, Mo.; Butterfly, Neb.; Yellow Jacket, Colo.; and exactly eleven towns in eleven states all named Bee, and a like number of towns named Locust. We are glad to note that Bee, Neb., Roach, Mo., and Fly, Ohio, will continue on the list of post offices.

* * * * *

Another way to figure the size of the aerosol market. It seems that Anchor Plastics Co. over in Long Island City has made enough of this aerosol plastic tubing—about 4 inches is used in each aerosol container—to extend around the world at the equator and still have a few thousand miles left over. To be exact, they have produced over 150 million feet of the stuff which should take care of about 450 million aerosol packages. Next Anchor will be figuring how much plastic tubing to reach the moon, a mere 238,957 miles away.

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HIT your advertising targets with bullets, not buckshot. Do it by concentrating your advertising in specific magazines to cover specific markets. Now if it be in the field of floor products, disinfectants, insecticides, aerosol products, soap and detergent specialties, automotive chemicals, and other chemical specialties where you want your advertising bullets to hit the target hard, try advertising in

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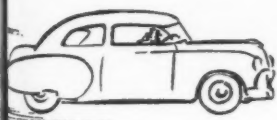
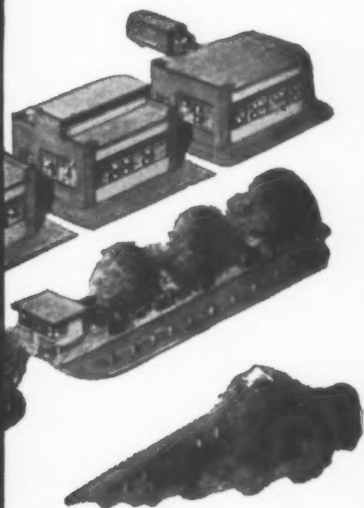
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